



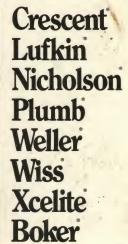
The Cooper Group Catalog















CooperTools

The Cooper Group is dedicated to providing a comprehensive line of quality hand tools for the professional, industrial, electronic, hobby, notions, sporting and do-it-yourself markets throughout the world.

Cooper Group products include Crescent* adjustable wrenches, pliers, nutdrivers and screwdrivers, Lufkin measuring tapes and rules, Nicholson files, rasps and saws, Plumb hammers, hatchets and axes, Weller soldering guns and irons, temperature-controlled soldering equipment and hobby and craft tools, Wiss scissors, shears and snips, Xcelite electronic screwdrivers, nutdrivers and pliers, and Boker knives.

The Group's manufacturing and marketing facilities are situated strategically across the USA, Canada, Central and South America, Western Europe, U.K. and Australia. A global network of distributors and wholesalers supported by worldwide marketing operations supplies Cooper's famous brand product lines to hardware stores, home centers, lumberyards, department and sporting stores, mass merchandisers, hobby, craft and notions outlets, and industrial and electronic consumers.

The Cooper Group is one of the operating divisions of Cooper Industries, the others being Energy Services, Drapery Hardware, Mining and Construction, Petroleum and Exploration Equipment, Industrial Equipment and Electrical Equipment.

With the combined technological and financial resources of Cooper Industries, The Cooper Group is soundly based to maintain and develop its reputation for producing quality hand tools worthy of professionals and craftsmen.



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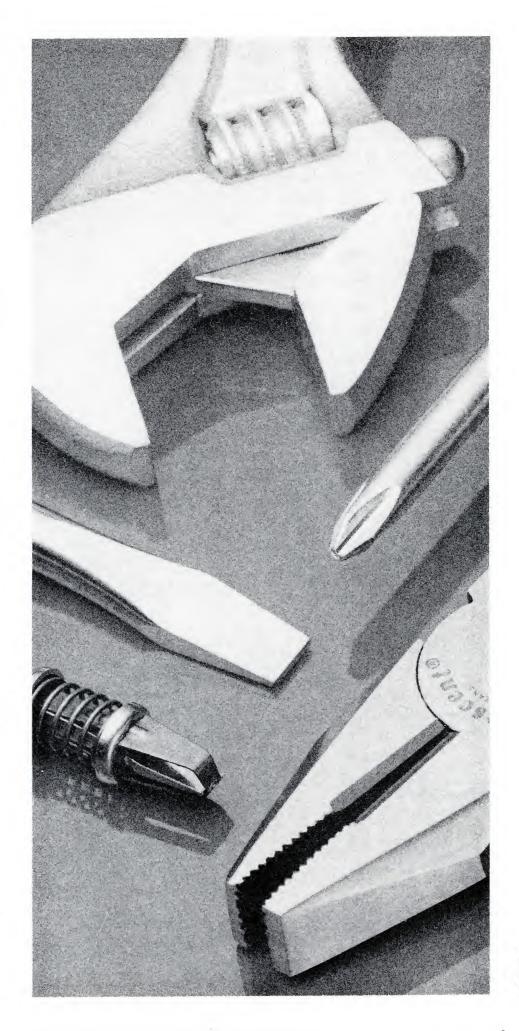
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CooperTools

Crescent

Makers of the original Crescent Wrench, the one customers ask for by name. Founded in 1907, Crescent now provides professionals, tradesmen and homeowners with the finest in adjustable wrenches, pliers, screwdrivers, nutdrivers, nail pullers and awls.

Special features available on Crescent products

Code: Use these letters after tool number and size to indicate your requirements. (Example: 942-4SC indicates 942-4" pliers with spring and cushion grip).

C-Cushion grip

E—Full flush cutting edge for Diagonal cutting pliers or End cutting nippers

I —Crestex insulated grip

P-Plain jaws

S-Pliers, coil spring between handles

T-Tenite grips

G—Semi-flush cutting edge for Diagonal cutting pliers or End cutting nippers

Cushion grip

A rough textured flat finish dipped and baked on at factory for extra comfort and slip resistance. Red color aids locating lost tools

Crestex grip

A hard, tough, long wearing material impervious to oil, gasoline and most solvents. Chip, dent and crack resistant. Supplied in orange color.

Tenite grip

Slip-on grips that provide maximum hold with minimum slippage because of molded-in serrations. These safety yellow handles are of a long-life, hard, tough material.

Crescent packaging

Certain tools are available in a special, vacuum packed hanging display package. To order, add suffix "V." For example, AC14V is carded. AC14 is not carded.

Note

N/S No. is an abbreviation for NIDA/SIDA Number.

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Key to symbols

←-L -→	Overall length
	Jaw opening
 	Blade length (of screwdrivers)
<u>*</u>	Blade diameter (of screwdrivers)
 	Overall length (of screwdrivers)

On Contents and Index pages C is an abbreviation for Crescent.

Crescent®adjustable wrenches

World famous "Crescent" adjustable wrench. Made of fine alloy steel to give extra strength and wear. Proportioned dimensions for greatest strength with minimum weight. Used by professional mechanics, industrial tradesmen and home mechanics. Tension spring under Knurl helps prevent jaw opening from changing adjustment. Open handle design permits easier Knurl adjustment. Made of drop-forged alloy steel and heat treated for toughness and durability. Available in chrome or black phosphate finish.



Chrome finish



Regular handle. Polished head. Heavy chromium plating to resist corrosion and rust.

Cat.	N/S No.	←-L-→ "/mm	**************************************	oz/g	Shelf Pack
AC14 AC14V	46168 46169	4/100	½/13	2.72/77	6
AC16 AC16V	46180 46181	6/150	3 /19	4.96/141	6
AC18 AC18V AC18[46193 46194 46857	8/200	$\frac{15}{16}/24$	8.96/25.4	6
AC110 AC110V AC110I	46303 46304 46676	10/250	11/29	20.48/581	6
AC112 AC112V AC112[46316 46317 46677	12/300	15/33	24.96/708	6 3 6

Tapered handle



Less weight. Better two-hand grip. Chromium plated.

N/S No.	← "/mm	//mm	oz/g	Shelf Pack
46329	15/380	111/43	52.32/1483	1
46335	18/460	21/52	81.44/2309	1
46341	24/610	27/62	140.80/3992	1
	No. 46329 46335	N/S No. "/mm 46329 15/380 46335 18/460	No. "/mm "/mm 46329 15/380 1½/6/43 46335 18/460 2½/5/52	No. "/mm oz/g 46329 15/380 11/6/43 52.32/1483 46335 18/460 21/6/52 81.44/2309

Cushion grip, chrome finish

Same as adjustable wrenches above, but with addition of new exclusive low-fusion plastisol Safety Grip; $\frac{1}{8}$ " baked on plastic coating with textured surface to provide comfortable, sure grip even under oiliest, sweatiest conditions. Bright red for easy identification.



Cat. No.	N/S No.	←-⊾ "/mm		oz/g	Shelf Pack
AC14C AC14CV	46170 46171	4/100	½/13	3.52/100	6
AC16C AC16CV	46182 46183	6/150	3 /19	4.96/141	6
AC18C AC18CV	46195 46196	8/200	15 /24	9.28/263	6
AC110C AC110CV	46305 46306	10/250	11/29	21.92/621	6
AC112C AC112CV	46318 46319	12/300	1 5/33	27.20/771	6

Black phosphate finish

Regular handle. Non-slip grip. Polished head. Corrosion resistant finish.



		10		
N/S	←-L →			Shelf
No.	"/mm	"/mm	oz/g	Pack
46175	4/100	1/12	2 72/77	6
46176	4/100	½/13	2.72/17	0
46187	0/150	3/10	4.06/141	6
46188	6/150	¥/19	4.90/141	0
46200				
46201	8/200	15 /24	8.96/254	6
46685				
46310				
46311	10/250	11/29	20.64/585	6
46314				
46324	12/200	1.5./22	24.06/700	6
46325	12/300	1 ₁₆ /33	24.30/708	3
	No. 46175 46176 46187 46188 46200 46201 46685 46310 46311 46314	No. "/mm 46175 46176 4/100 46187 46188 6/150 46200 46201 8/200 46685 46310 46311 46314 46324 12/300	No. "/mm "/mm 46175 46176 4/100 ½/13 46187 46188 6/150 ½/19 46200 46201 46201 46685 46310 46311 10/250 1½/29 46314 46324 12/300 1.5/33	No. "/mm vz/g 46175 4/100 ½/13 2.72/77 46187 6/150 ½/19 4.96/141 46200 46201 8/200 ½/24 8.96/254 46310 46311 10/250 1½/29 20.64/585 46324 12/300 1½/33 24.96/708

Tapered handle



Cat.	N/S No.	← L→ "/mm	/mm	oz/g	Shelf Pack
AT115	46333	15/380	111/43	52.32/1483	1
AT118	46339	18/460	216/52	81.44/2309	1

Cushion grip, black phosphate finish



Cat.	N/S No.	← "/mm	* 1 /mm	oz/g	Shelf Pack
AT14C	46177	4/100	1/13	3.52/100	6
AT16C	46189	6/150	₹/19	4.96/141	6
AT18C AT18CV	46202 46203	8/200	15 /24	9.28/263	6
AT110C AT110CV	46312 46313	10/250	11/29	21.92/621	6
AT112C AT112CV	46326 46327	12/300	1 5/33	27.20/771	6

Tool kits



2 and 3 piece chromium plated adjustable wrenches in vinylite case with snap fastener.

Cat. No.	N/S No.	Description	Contents	Shelf Pack
AC Kit	46150	3 pieces	AC16, AC18 and AC1	110 1
AC1	46772	2 pieces	AC16 and AC110	111

Tool kits



2 and 3 piece chromium plated adjustable wrenches on skin packed hang-up card.

Cat. No.	N/S No.	Description	Contents	Shelf Pack
ACV	46868	3 pieces	AC16, AC18 and AC11	0 1
AC1V	46869	2 pieces	AC16 and AC110	1

Adjustable wrench repair parts Jaws for AC and AT wrenches





Size "/mm	AC Cat. No.	N/S No.	AT Cat. No.	N/S No.	oz/g	Shelf Pack
4/100	AC14J	46172	AT14J	46179	4.5/128	3
6/150	AC16J	46184	AT16J	46191	9.0/255	3
8/200	AC18J	46197	AT18J	46204	17.0/482	3
10/250	AC110J	46307	AT110J	46315	28.5/808	3
12/300	AC112J	46321	AT112J	46328	36.0/1021	3
15/380	AC115J	46330	AT115J	46334	9.0/255	1
18/460	AC118J	46336	AT118J	46340	16.0/454	1
24/610	AC124J	46342	_	_	27.0/765	11

Knurls for AC and AT wrenches







Size	AC	AT	N/S No.	oz/g	Shelf Pack
"/mm	Cat. No.	Cat. No.			3
4/100	AC14K	AT14K	46173	2.0/57	
6/150	AC16K	AT 16K	46185	3.0/85	3
8/200	AC18K	AT 18K	46198	4.0/113	3
10/250	AC110K	AT 1 10K	46308	6.5/184	3
12/300	AC112K	AT112K	46322	10.5/298	3
15/380	AC115K	AT 115K	46331	2.0/57	1
18/460	AC 1 18K	AT 118K	46337	3.0/85	1
24/610	AC124K	_	46343	4.0/113	1

Pins and springs for AC and AT wrenches



Size	AC	AT	N/S		Shelf
"/mm	Cat. No.	Cat. No.	No.	oz/g	Pack
4/100	AC14P-S	AT14P-S	46174	2.0/57	3
6/150	AC16P-S	AT16P-S	46186	2.0/57	3
8/200	AC18P-S	AT 18P-S	46199	3.0/85	3
10/250	AC110P-S	AT110P-S	46309	3.0/85	3
12/300	AC112P-S	AT112P-S	46323	5.5/156	3
15/380	AC115P-S	AT115P-S	46332	6.0/170	1
18/460	AC118P-S	AT 118P-S	46338	7.0/198	1
24/610	AC124P-S		46344	8.5/241	1

Repair parts assortments

The assortments come in boxes which have separate compartments for each of the five sizes of parts.

Box size: $7\frac{1}{4} \times 5\frac{1}{4} \times 1\frac{7}{8}$ " /184 x 133 x 47mm with hinged cover.

Shipping weight: 2.9 lbs/1162 g.

RP-AC Parts for Crescent chromium plated wrenches will fit "AC" style wrenches.

Cat. No.	N/S No.	Contents:			Shelf Pack
RP-AC	46151	2xAC14J	2xAC14K	2xAC14P-S	1
		3xAC16J	3xAC16K	3xAC16P-S	1
		3xAC18J	3xAC18K	3xAC18P-S	1
		3xAC110J	3xAC110K	3xAC110P-S	1
		3xAC112J	3xAC112K	3xAC112P-S	1

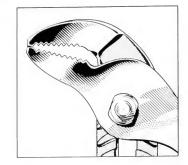
RP-AT Parts for Crescent "AT" style wrenches. Jaws are black, knurls and pins are plated.

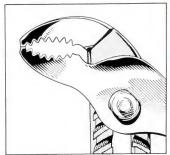
Cat. No.	N/S No.	Contents:			Shelf Pack
RP-AT	46152	2xAT14J	2xAT14K	2xAT14P-S	1
		3xAT16J	3×AT16K	3xAT16P-S	1
		3xAT18J	3xAT18K	3xAT18P-S	1
		3xAT110J	3xAT110K	3xAT110P-S	1
		3xAT112J	3xAT112K	3xAT112P-S	1

Crescent tongue and groove pliers

Versatile utility pliers, ideal for objects of all shapes, including rods, pipes, hose and cable connections and many other mechanical devices. Drop-forged, precision machined from the finest quality tool steel. Hardened, tempered, polished. Heavy duty nut and bolt joint. Self-locking jaw opening adjustment. Long handles give powerful leverage. Fibre-impregnated plastisol grips provide a sure grip under any conditions.

Precision Milling: Ribs are precision milled to assure a smooth, positive interlock between the two halves plus heavy duty nut and bolt results in safe, sure action with no chance of halves separating or jumping out of grooves.







Straight jaws



Cat.	N/S No.	←-L→ "/mm	//mm	No. of jaw positions	oz/g	Shelf Pack
R27 R27V	46257 46258	7/178	$1\tfrac{1}{8}/28$	4	5.92/168	6
R27C R27CV	46259 46260	7/178	11/28	4	7.04/200	6
R210 R210V	46365 46366	10/250	1½/38	5	13.92/395	6
R210C R210CV	46367 46368	10/250	1½/38	5	15.04/426	6
R212 R212V	46370 46371	12/300	23/60	6	28.96/821	6 3
R212C R212CV	46372 46373	12/300	23/60	6	29.92/848	6
R214C	46374	14/350	31/82	8	34.08/966	1
R220	46701	10/250	21/54	7	15.36/435	6
R220C R220CV	46703 46704	10/250	21/54	7	15.36/435	6

R27 and R210 conform to U.S. Fed. Spec. GGG-P-471C, Type II, Class 1, Style A.

Curved jaws



Cat.	N/S No.	←⊾→ "/mm	″/mm	No. of jaw positions	oz/g	Shel: Pack
R410 R410V	46467 46468	10/250	1½/38	5	12.00/340	6
R410C R410CV	46469 46470	10/250	1½/38	5	13.92/395	6
R414C	46475	14/350	31/82	8	34.08/966	1

Slip joint pliers

Drop-forged from carbon steel and accurately machined for best gripping and turning of round objects such as pipes, rods, studs, pins and connections. Although an all purpose tool they are available in thin nose, bent nose and heavy duty sizes as well as the regular combination series.

Cee Tee Co.® combination



Drop-forged steel, hardened and tempered. Bright plated finish. Milled gripping teeth. Wire cutter. Knurled handles.

Cat.	N/S No.	← "/mm	″/mm	oz/g	Shelf Pack
H26 H26V	46248 46768	6/150	1/25	8.00/227	12
H28 H28V	46264 46767	8/200	11/32	9.60/272	12

Motor kit® combination



Polished steel, chromium plated. Milled gripping teeth. Wire cutter. Knurled handles.

Cat. No.	N/S No.	←-L→ ″/mm	″/mm	oz/g	Shel Pack
G25 G25V	46240 46241	5/125	3 /19	4.00/113	6
G26 G26V	46246 46247	6/150	1/25	8.00/227	6
G28 G28V	46262 46263	8/200	11/32	9.28/263	6
G210 G210V	46361 46362	10/250	11/38	16.00/454	6 3

Thin straight nose combination



Polished steel, chromium plated. Thin nose for use in tight places. Wire cutter. Milled gripping teeth. Knurled handles.

Cat.	N/S No.	←└→ "/mm	"/mm	oz/g	Shelf Pack
L25 L25V	46243 46244	5/125	3 /19	4.00/113	6
L26 L26V	46251 46252	6/150	1/25	6.40/181	6
L28 L28V	46265 46266	8/200	11/32	8.64/245	6

Conforms to U.S. Fed. Spec. GGG-P-471C, Type II, Class 2, Style B.

Thin bent nose combination



30° angle nose. Polished steel, chromium plated. Milled gripping teeth. Wire cutter. Knurled handles.

Cat No.	N/S No.	← ⊾ → " /mm	"/mm	oz/g	Shelf Pack
J26 J26V	46249 46250	6/150	1/25	7.04/200	6

Conforms to Fed. Spec. GGG-P-471C. Type II Class 3, Style B.

Slip joint, side cutting



Polished steel, chromium plated. Side cutting wire cutter. Knurled handles. Milled gripping teeth.

Cat.	N/S No.	←L→ "/mm	″/mm	oz/g	Shelf Pack
LS26 LS26V	46253 46254	6/150	1/25	7.04/200	6

Slip joint, side cutter



For heavy duty use. Polished head, black handles. Flush bolt. Milled gripping teeth. $\frac{3}{8}$ in. induction hardened wire cutter.

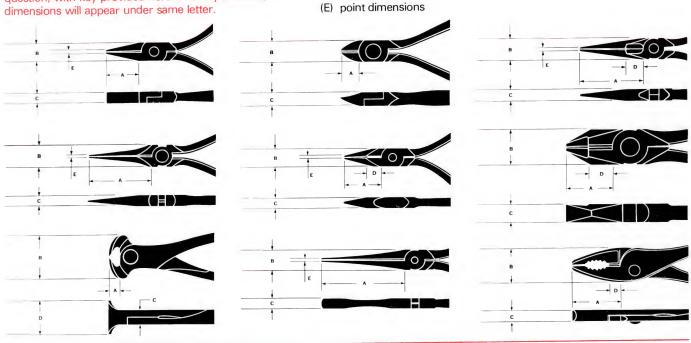
Cat.	N/S No.	← · → " /mm	″/mm	oz/g	Shelf Pack
923-7	46541	7/175	1½/38	10.40/295	6

For slip joint pliers replacement nuts and bolts, see price list, cat. nos. PBN 5, 6, 10, 27, 210, 212.

Reference drawings for tool dimensions

Shown here are nine different types of "Crescent" pliers. To (A) nose length obtain exact dimensions on any pliers listed in this catalog, compare letters appearing in dimension line under pliers in question, with key provided here. In every instance,

- (B) nose width
- (C) maximum thickness
- (D) cutter length



Beveled inside edges to guard against nicking or marring wire are standard on all Crescent long and chain nose pliers.

Cutting edges on Crescent cutting pliers are electronically induction hardened and hand honed. Nothing is left to chance, each is tested and inspected to ensure cutting ease and long cutting life.

Coil springs added between the handles keep the pliers handle in an open position reducing operator fatigue and speeding assembly-line production.



Solid joint pliers



Short nose diagonal



Short nose for greater leverage and cutting at close quarters.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
940-6	46543	6/150	9/14	$\frac{11}{16}/17$	7/11	6.88/195	6
940-6C	46544	6/150	9/14	11/17	7/11	6.88/195	6
940-6SC	46545	6/150	9/14	11/17	$\frac{7}{16}/11$	6.88/195	6

Conforms to Fed. Spec. GGG-P-471C, Type IV, Class 2.

Midget semi-flush cutting



Fine tapered nose. Semi-flush or full-flush cutting edges.

Cat. No.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
941-4SC	46546	4/100	15/12	7/11	½/6	2.88/82	6
941-4SCE	46548	4/100	$\frac{15}{32}/12$	7/11	1/6	2.88/82	6

Stainless steel diagonal cutting



Cutting edges machine ground to achieve a precise angle for continuous snap cutting. Designed for cutting and trimming circuit boards and lead wires on capacitors, resistors and other electronic components.

Maximum Cutting Specifications: Soft, non-ferrous wire:. 032" diameter

Half hard non-ferrous wire: . 020" diameter

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
200SCEB	46359	4/100	15/12	7/11	$\frac{7}{3.2}/6$	$\frac{9}{3.2}/7$	2.72/77	6

Midget and standard diagonal



Cat. No.	N/S No.	⊷ ″/mm	A "/mm	B "/mm	C "/mm	oz/g	Shel Pack
Round join	t design						
942-4	46550	4/100	½/13	$\frac{7}{1.6}/1.1$	1/6	2.88/82	6
942-4C 942-4CV	46551 46552	4/100	½/13	$\frac{7}{16}/11$	1/6	3.04/86	6
942-4SC	46553	4/100	½/13	$\frac{7}{1.6}/1.1$	1/6	2.88/82	6
942-4½SC	46555	4½/113	11 /17	$\frac{15}{32}/12$	$\frac{1}{3}\frac{1}{2}/9$	4.00/113	6
Square join	t design						
942-5	46557	5/125	$\frac{11}{16}/17$	$\frac{9}{16}/14$	_홍 /10	4.00/113	6
942-5C 942-5CV	46559 46560	5/125	11 /17	9 16/14	³ /10	4.00/113	6
942-5SC	46561	5/125	11/17	$\frac{9}{16}/14$	₹/10	4.48/127	6
942-6 942-6V	46563 46565	6/150	²⁷ / ₃₂ /21	$\frac{11}{16}/17$	$\frac{7}{1.6}/1.1$	5.92/168	6
942-6C 942-6I 942-6CV	46566 46564 46567	6/150	$\frac{2.7}{3.2}/2.1$	11/17	$\frac{7}{1.6}/1.1$	5.92/168	6
942-6SC	46568	6/150	37 /21	11/17	$\frac{7}{16}/11$	5.92/168	6

Conforms to U.S. Fed. Spec. GGG-P-00468, Type I, Class 1.

Diagonal full-flush cutting



Tapered nose with back clearance for use in confined areas. Full flush edges with back taper at extreme tip. Ideal for printed circuit and other electronic applications.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
946-4½SCE	46571	4½/113	$\frac{11}{16}/17$	$\frac{15}{32}/12$	$\frac{1}{3}\frac{1}{2}/9$	4.00/113	6

Diagonal cutting



Full flush edges with back clearance. Very fine tapered nose with back taper at extreme tip for close cutting No. 24 gauge (.020" dia.) and smaller soft copper wire. Ideal for delicate electronic circuitry work.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
951-4SCE	46573	4/100	$\frac{15}{32}/12$	7 /11	1/6	$\frac{13}{32}/10$	2.88/82	6

Special slim nose diagonal



Designed for tip cutting in close quarters. Semi-flush cutting edges.

Cat.	N/S No.	←↓→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
943-5SC	46569	5/125	11/17	§/16	₹/10	$\frac{11}{16}/17$	4.48/127	6

Heavy diagonal cutting



Powerful cutting pliers. Full fashioned handles for maximum leverage. Will cut BX armored cable.

Cat. No.	N/S No.	← - → "/mm	A "/mm	B "/mm	C ″/mm	oz/g	Shelf Pack
742-7	46519	7/175	₹/19	7/22	½/13	10.80/306	6
742-7C	46520	7/175	<u></u> ₹/19	7/22	½/13	10.80/306	6

Conforms to U.S. Fed. Spec. GGG-P-00468, Type I, Class 1.

Heavy duty diagonal cutting

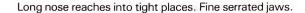


Designed for cutting heavy wire. Long lasting cutting edges. Handle designed for comfortable grip.

Cat. No.	N/S No.	← ″/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
542-7 542-7V 542-7I	46478 46479 46690	7/175	$\frac{25}{32}/20$	1 7/3 2/3 1	⁷ / ₁₆ /11	8.96/254	6
542-7C 542-7CV	46480 46481	7/175	$\frac{25}{32}/20$	1 3 2 / 3 1	⁷ / ₁₆ /11	8.96/254	6
542-8	46482	8/200	13/20	$1\frac{7}{32}/31$	½/13	12.00/340	6
542-8C 542-8[46483 46860	8/200	13 /20	$1\frac{7}{32}/31$	½/13	12.00/340	6

Conforms to U.S. Fed. Spec. GGG-P-00468, Type III.

Long chain nose side cutting





oz/g	She /g Pac
4.00	00/113
4.00	00/113
×2 6.08	08/172
×2 6.08	08/172
×2 6.08	08/172
k2 7.04	04/200
k2 7.04	04/200
2 8.64	64/245
	_



Slim, streamlined pliers with fine serrations or plain jaws. Excellent for miniature electronic work. For plain jaws specify "P."

Cat.	N/S No.	←-L-→ "/mm	A "/mm	B "/mm	C "/mm	E "/mm	oz/q	Shelf Pack
25-4½SC		4½/114			¹ /6	.046x _{1.6} /1x1	3	
25-4½SCP	46238	$4\frac{1}{2}/114$	$1\frac{3}{32}/28$	7 /11	1/6	$.046x_{16}^{-1}/1x1$	3.20/91	6

Conforms to U.S. Fed. Spec. GGG-P-471d, Type XI, Class 1, Style B.

Long chain nose



Makes loops and bends of various size wire. Ideal for radio, telephone and other electronic work. Long nose reaches into tight places. Fine serrated jaws.

Cat. No.	N/S No.	← " /mm	A "/mm	B "/mm	C "/mm	E "/mm		helf ack
1033-5½SC	46579	5½/140	13/44	$\frac{17}{32}/13$	9 /7	1 ₁₆ /1 dia	4.48/127	6
1033-6 1033-6V	46581 46582	6/150	17/48	11/17	₹/10	$\frac{3}{32}/2$	5.92/168	6
1033-6C 1033-6CV	46583 46584	6/150	17/48	11/17	₹/10	$\frac{3}{32}/2$	5.92/168	6
1033-6SC	46585	6/150	17/48	11/17	§/10	$\frac{3}{32}/2$	6.08/172	6
1033-7	46586	7/175	$2\frac{21}{32}/67$	³ /19	₹/10	$\frac{5}{32} \times \frac{3}{32} / 4 \times 2$	7.04/200	6
1033-7C 1033-7CV	46588 46589	7/175	$2\frac{2}{3}\frac{1}{2}/67$	<u>3</u> /19	3/10	$\frac{5}{32}$ x $\frac{3}{32}$ /4x2	7.04/200	6
1033-7SC	46590	7/175	$2\frac{21}{32}/67$	₹/19	3/10	$\frac{5}{32} \times \frac{3}{32} / 4 \times 2$	7.04/200	6

Short chain nose



Designed for fine, close electrical and mechanical work. Ideal for electricians, jewelers, opticians and hobbyists. Serrated jaws.

Cat.	N/S		A	B	C "/mm	D "/mm		Shelf Pack
No.	No.	"/mm	"/mm	"/mm	/mm			
22-4SC	46226	4/100	$1\frac{1}{16}/27$	$\frac{15}{32}/12$	1/6	$.046x_{\frac{3}{64}}/1x1$	3.04/86	6
22-5	46228	5/125	$1\frac{5}{32}/29$	$\frac{1}{2}/13$	5 16/8	1/1 dia	3.52/100	0 6
22-5C 22-5CV	46231 46231	5/125	1 5/29	$\frac{1}{2}/13$	⁵ / ₁₆ /8	1 ₁₆ /1 dia	3.52/100	0 6
22-5SC	46232	5/125	$1\frac{5}{32}/29$	½/13	5 ₁₆ /8	1/6/1 dia	4.00/11	3 6
Conforms	to U.S. Fed	Spec. G	GG-P-471	d, Type X	I, Class 2,	Style B.		

Short chain nose side cutting



Short nose ground to fine point. Fine serrations.

Cat. No.	N/S No.	←-L→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	E "/mm	oz/g	Shelf Pack
622-5	46486	5/125	1 5/29	9/14	$\frac{11}{32}/9$	$\frac{13}{32}/10$	$\frac{3}{32}$ $\times \frac{5}{32}$ /2×4	4.00/11	3 6
	46488 46489	5/125	1 ⁵ / _{3 2} /29	9/14	$\frac{11}{32}/9$	$\frac{13}{32}/10$	$\frac{3}{32}x\frac{5}{32}/2x4$	4.00/11	3 6
622-5SC	46490	5/125	$1\frac{5}{32}/29$	$\frac{9}{16}/14$	$\frac{11}{32}$ /9	$\frac{13}{32}/10$	$\frac{3}{32}x\frac{5}{32}/2x4$	4.00/11	3 6

Very fine needle nose



Fine serrations on jaws. Slightly beveled inside edges.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	E "/mm	oz/g	Shelf Pack
665-5 1 SC	46509	51/140	113/46	15/12	1/6	.072/1.829 dia	3.36/9	95 6

Extra thin long needle nose



Spring tempered jaws, precision machined to $\frac{1}{16}''/1.58$ mm at extreme tip. $4\frac{1}{2}''/114$ mm size available with plain jaws only. 6''/152mm size available with serrated jaws only. Slightly beveled inside edges.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	E "/mm		Shelf Pack
666-41SCP	46511	41/114	13/28	7 /11	1/6	.046x1/1x1	3.36/95	6
666-6	46513	6/150	21/57	$\frac{15}{32}/12$	1/6	1 dia/1	4.00/113	3 6
666-6CV	46515 46516	6/150	21/57	15/12	1 /6	1 dia/1	4.00/113	3 6
666-6SC	46517	6/150	21/57	15/12	1/6	1 dia/1	4.00/113	3 6

Long needle nose



Long thin nose has excellent gripping ability for use in tight, narrow places.

Cat. No.	N/S No.	← ⊷ ″ /mm	A "/mm	B "/mm	C "/mm	E "/mm	oz/g	Sh Pa	
777-6 777-6V	46528 46529	6/150	$2\frac{1}{16}/52$	$\frac{11}{16}/17$	$\frac{1}{3}\frac{1}{2}/9$	$\frac{1}{8}x\frac{3}{32}/3x2$	4.00/1	13	6
777-6C 777-6CV	46530 46531	6/150	$2\frac{1}{16}/52$	11/1/17	$\frac{1}{3}\frac{1}{2}/9$	$\frac{1}{8}x\frac{3}{32}/3x2$	4.00/1	13	6
777-6SC	46532	6/150	$2\frac{1}{16}/52$	$\frac{11}{16}/17$	$\frac{11}{32}$ /9	$\frac{1}{8}x\frac{3}{32}/3x2$	4.96/1	41	6
777-7 777-7V	46533 46534	7/175	2 11 /68	$\frac{11}{16}/17$	$\frac{21}{64}/8$	$\frac{5}{32} \times \frac{3}{32} / 4 \times 2$	6.24/1	77	6
777-7C 777-7CV	46535 46536	7/175	211/68	11/17	$\frac{21}{64}/8$	$\frac{5}{32}x\frac{3}{32}/4x2$	6.24/1	77	6
777-7SC	46537	7/175	211/68	11/17	²¹ /8	$\frac{5}{32} \times \frac{3}{32} / 4 \times 2$	6.40/1	81	6

Conforms to U.S. Fed. Spec. GGG-P-471d, Type XII, Class 2, Style A

Curved needle nose



Thin bent nose for working in out-of-the-way corners. Tempered jaws, will not break off, always returns to normal when pressure is released.

Cat. No.	N/S No.	←-៤ "/mm	A "/mm	B "/mm	C "/mm	E ″/mm	Shelf oz/g Pack
888-6	46538	6/150	1/25	11/17	흏/10	$\frac{3}{32}/2$	6.72/191 6
888-6C	46539	6/150	1/25	11/17	³ /10	$\frac{3}{32}/2$	6.72/191 6
888-6SC	46540	6/150	1/25	11/17	§/10	$\frac{3}{32}/2$	6.72/191 6

Tip cutter wiring



For delicate, intricate assembly work. Finely serrated tips will not mar or nick wire. Cutting edges near tip for snap cutting the finest solid or stranded copper wire.

		←-L-→ "/mm				D "/mm	E "/mm	oz/g	Shelf Pack
775-41SC	46521	41/114	$1\frac{3}{32}/28$	$\frac{7}{1.6}/1.1$	1/6	5/4	$\frac{3}{64}x\frac{3}{32}/1x2$	2.72/7	7 6

Short nose tip cutting



 $30\,^{\rm o}$ angle tip cutter with semi-flush edge for cutting in restricted areas in electronic components and for trimming printed circuit boards.

Cat.	N/S No.		, ,	B "/mm	C "/mm	D "/mm	E "/mm	oz/g	Shelf Pack
27-4½SC	4625	5 41/114	1/25	$\frac{7}{16}/11$	1 /6	$\frac{7}{32}/6$	_	3.20/9	1 6

Round nose wire loop



Both sides of nose are carefully rounded. Precision ground to small point. Useful for looping and forming fine wire.

Cat.	N/S	← L→	Α	В	С	D		Shelf
No.	No.	"/mm	"/mm	"/mm	"/mm	"/mm	oz/g	Pack
21-41SC	46220	41/114	7 /22	$\frac{15}{32}/12$	15/6	$\frac{3}{64}/1$	3.20/91	6
21-6	46222	6/150	13/35	§/16	$\frac{13}{32}/10$	$\frac{3}{32}/2$	5.12/14	6 6
21-6C 21-6CV	46223 46224	6/150	13/35	§/16	$\frac{1}{3}\frac{3}{2}/10$	$\frac{3}{32}/2$	4.45/12	6 6
21-6SC	46225	6/150	18/35	§/16	$\frac{13}{32}/10$	$\frac{3}{32}/2$	5.12/14	5 6
Conforms	to U.S. Fed	. Spec. GG	G-P-471d,	Type X.				

Short flat nose



Light pliers for fine work. Plain jaws.

Cat. No.	N/S No.	←└→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
20-4½SCP	46218	41/114	$1\frac{3}{32}/28$	$\frac{7}{16}/11$	1/6	$\frac{1}{16}x_4^{\frac{1}{4}}/1x6$	3.36/9	95 6
Conforms to					-	16/4/ //		

Duck bill



The long thin jaws will reach into narrow places. Plain jaws.

Cat. No.	N/S No.	← ⊾→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
23-7	46233	7/175	211/68	11/17	$\frac{11}{32}/9$	$\frac{5}{64}x_{\frac{1}{3}\frac{1}{2}}^{1/2}x_{\frac{9}{2}}$	6.08/	172 6
23-7C	46234	7/175	211/68	11/17	$\frac{11}{32}/9$	$\frac{5}{64} \times \frac{11}{32} / 2 \times 9$	6.08/	172 6
23-7SC	46235	7/175	211/68	11 /17	$\frac{1}{3}\frac{1}{2}/9$	$\frac{5}{64}x\frac{11}{32}/2x9$	6.08/	172 6

Conforms to U.S. Fed. Spec. GGG-P-471d, Type XV, Class 1 and 2.

Long flat nose



Long and thin, flat nose and keen cutting edge. Ideal for automobile radiator repair and textile knitting machine work.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	D "/mm	E "/mm	oz/g	Shelf Pack
650-7	46491	7/175	2 ₁₆ /65	11/17	₹/10	1/13	$\frac{1}{16}x_8^3/1x10$	7.36/2	09 6
650-7C 650-7CV	46493 46494	7/175	2 ⁹ /65	11/17	³ /10	1/13	$\frac{1}{16}x_{8}^{3}/1x10$	7.36/2	09 6

Conforms to U.S. Fed. Spec. GGG-P-471d, Type V, Class 3, Style B.

Lineman's pliers

Solid joint lineman's pliers are made of drop-forged steel with polished heads and gun metal handles. Durable, keen cutting edges. Available with either red cushion grips or Tenite grips.

Crescent lineman's pliers can be supplied with insulating grips made of Tenite. Tests have shown this material to be highly suitable for this purpose. It has a high dielectric value and we recommend pliers to which it has been applied to those who have need for insulated tools. Available on all lineman's pliers. Specify the letter "T" after the tool number when ordering (i.e. 50-7T).



Side cutting



A sturdy tool for electrical work. Keen edged cutters and spring tempered handles. For general purpose use.

Cat.	N/S No.	←┖→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	Shelf oz/g Pack
50-6 50-6V	46272 46273	6/150	$1\frac{3}{32}/28$	⁷ /22	½/13	9 16/14	6.40/181 6
50-6C 50-6CV	46274 46275	6/150	$1\frac{3}{32}/28$	7/22	½/13	9 16/14	6.88/195 6
50-6T	46661	6/150	$1\frac{3}{32}/28$	½/22	½/13	9 16/14	6.88/195 6
50-7 50-7V	46276 46277	7/175	1 3/32/33	1/25	½/13	§/16	9.44/268 6
50-7C 50-7CV	46278 46279	7/175	1 3 / 33	1/25	½/13	§/16	9.92/281 6
50-7T	46858	7/175	1 ⁹ /33	1/25	½/13	_홍 /16	9.92/281 6
50-8 50-8V	46280 46281	8/200	1 15 /37	11/28	9 16/14	<u>3</u> /19	12.96/367 6
50-8C 50-8CV	46282 46283	8/200	1 15 /37	11/28	9/16/14	3 /19	13.92/395 6
50-8T	46859	8/200	$1\frac{15}{32}/37$	11/28	9 16/14	₹/19	13.92/395 6
50-8T	46859	8/200	1 1 1 2 / 3 7	11/28	9/14	₹/19	13.92/395

Conforms to U.S. Fed. Spec. GGG-P-471d, Type IX, Class 1.

Heavy duty side cutting



Designed especially to meet the requirements of linemen. Cuts many gauges of wire.

Cat. No.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	D "/mm	She oz/g Pac
1950-6	46595	6/150	$1\frac{3}{32}/28$	1/25	½/13	$\frac{9}{16}/14$	8.00/277
1950-6C 1950-6CV	46597 46598	6/150	$1\frac{3}{32}/28$	1/25	$\frac{1}{2}/13$	9 16/14	8.48/240
1950-6T	46693	6/150	$1\frac{3}{32}/28$	1/25	½/13	$\frac{9}{1.6}/14$	8.48/240
1950-7	46599	7/175	1 9/33	11/29	.520/14	$\frac{11}{16}/17$	10.40/295
1950-7C 1950-7CV	46601 46602	7/175	1 3 / 3 / 3 / 3	11/29	.520/14	$\frac{11}{16}/17$	10.56/299
1950-7T	46664	7/175	$1\frac{9}{32}/33$	11/29	.520/14	$\frac{11}{16}/17$	10.56/299
Conforms to	ILS Fec	Spec. GG	G-P-471d.	Type IX, Cl	ass 1.		

Heavy duty high leverage side cutting



Designed especially to meet the requirements of linemen. Cuts many gauges of wire.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	Shelf Pack
1950-8 1950-8V	46603 46604	8/200	1½/38	1/29	§/16	₹/19	15.04	/426 6
1950-8C 1950-8CV	46605 46606	8/200	1½/38	1/29	§/16	₹/19	15.04	/426 6
1950-8T 1950-8I	46665 46607	8/200	1½/38	1/29	5 /16	³ /19	15.04	/426 6

Lineman's high leverage



Streamlined head — slides easily in and out of belt loops. Cutters are hand honed so that they cut cleanly and stay sharp.

Cat.	N/S	←-L-→	Α	В	C	D	/	Shel
No.	No.	"/mm	"/mm	"/mm	"/mm	"/mm	oz/g	Pack
2050-9	46608	9/225	$1\frac{9}{16}/40$	$1\frac{9}{32}/33$	§/16	$\frac{13}{16}/21$	18.72	/531 6
2050-9C 2050-9CV	46609 46825	9/225	1 ⁹ /40	$1\frac{9}{32}/33$	§/16	$\frac{13}{16}/21$	19.04	/540 6
2050-9T	46666	9/225	1 9/40	$1\frac{9}{32}/33$	§/16	$\frac{13}{16}/21$	19.04	/540 6

Lineman's high leverage round nose



Streamlined design. Slides freely in and out of belt loops. Light in weight without sacrificing strength. Hand honed edges cut cleanly and retain sharpness.

Cat.	N/S	← L→	A	В	C	D "/mm	oz/q	Shelf Pack
No.	No.	"/mm	"/mm	"/mm	"/mm	/111111	0Z/g	Tack
2150-8	46627	8/200	$1\frac{7}{16}/37$	$1\frac{3}{16}/30$	§/16	₹/19	18.08	/513 6
2150-8C	46628	8/200	$1\frac{7}{16}/37$	$1\frac{3}{16}/30$	§/16	³ /19	18.08	/513 6
2150-8T	46667	8/200	$1\frac{7}{16}/37$	$1\frac{3}{16}/30$	§/16	₹/19	18.08	/513 6

Universal cutting



A tool for general use. Has a flat nose with teeth for gripping. Keen side cutter. Pipe grip in nose.

Cat.	N/S	←-L	А	В	С	D	Shelf
No.	No.	"/mm	"/mm	"/mm	"/mm	"/mm	oz/g Pack
3800-6	46668	6/150	$1\frac{11}{32}/34$	7 /22	$\frac{15}{32}/12$	$\frac{7}{16}/11$	8.00/227 6
3800-6C	46669	6/150	$1\frac{1}{3}\frac{1}{2}/34$	7 /22	$\frac{15}{32}/12$	$\frac{7}{16}/11$	8.48/240 6
3800-6T	46670	6/150	$1\frac{1}{3}\frac{1}{2}/34$	7/22	$\frac{15}{32}/12$	$\frac{7}{1.6}/11$	9.33/265 6
3800-7	46671	7/175	$1\frac{17}{32}/39$	1/25	$\frac{1}{2}/13$	½/13	10.72/304 6
3800-7C	46672	7/175	$1\frac{17}{32}/39$	1/25	$\frac{1}{2}/13$	½/13	10.72/304 6
3800-7T	46861	7/175	$1\frac{17}{32}/39$	1/25	½/13	½/13	12.00/340 6
3800-8	46674	8/200	13/44	$1\frac{1}{16}/27$	$\frac{17}{32}/13$	9/14	14.40/408 6
3800-8C	46675	8/200	13/44	$1\frac{1}{16}/27$	$\frac{17}{32}/13$	$\frac{9}{16}/14$	15.04/426 6
3800-8T	46862	8/200	13/44	$1\frac{1}{16}/27$	$\frac{17}{32}/13$	$\frac{9}{1.6}/14$	15.36/435 6

Button pliers fence tool



Flat nose style, with three wire cutters, pipe grip and teeth in extreme tip of nose. Excellent for construction and maintenance of wire fencing.

Cat. No.	N/S No.	←-⊾→ "/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
1000-8	46575	8/200	1 9/33	13/35	9/14	15.04/426	6
1000-10	46576	10/250	1½/38	$1\frac{7}{16}/37$	_홍 /16	20.64/585	6
1000-12	46577	12/300	1½/38	1 ⁹ /40	11 /17	32.96/934	6

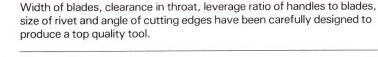
Heavy duty fence tool



Has corrugated hammer head, two wire cutters, two staple grips in nose and wire grip between handles for stretching wire. Heavy prong on head gets in behind rusty staples and pulls them easily. Both wire and staple can be gripped together by special opening in head of tool. Cutter capacity: $\frac{7}{32}$ "/5.5mm.

Cat. No.	N/S No.	←-L→ "/mm	A "/mm	B "/mm	C "/mm	oz/g	Shelf Pack
1936-10 1936-10V	46591 46592	10/250	$1\frac{1}{16}/27$	35/91	$\frac{19}{32}/15$	24.96/708	6
1936-10C 1936-10CV	46593 46594	10/250	1 1 6/27	35/91	$\frac{19}{32}/15$	27.04/767	6

End cutting nippers





N/S No.	←↓→ "/mm	A "/mm	B "/mm	C "/mm	D "/mm	oz/g	She Pac
46289 46290	6/150	₹/10	1 7/8/37	15/12	1 1 1 6 / 27	8.00/2	27
46291 46292	6/150	3/10	17/37	15/12	116/27	8.96/2	54
46293 46294	7/175	3/10	1 3/40	$\frac{17}{32}/13$	1 3/30	12.00/	340
46295 46296	7/175	3/10	1 3 / 40	$\frac{17}{32}/13$	1 ₁₆ /30	12.00/	340
46297 46298	8/200	3/10	13/44	$\frac{17}{32}/13$	1 3/30	16.00/	454
46299 46300	8/200	3/10	13/44	$\frac{17}{32}/13$	$1\frac{3}{16}/30$	16.00/	454
46740	9/225	13/11	17/46	19/15	11/32	16.96/	481
46741 46766	9/225	13/11	17/46	19/15	11/32	16.96/	481
	No. 46289 46290 46291 46292 46293 46294 46295 46296 46297 46298 46300 46740	No. "/mm 46289 46290 6/150 46291 46292 6/150 46293 46294 7/175 46295 46296 7/175 46297 46298 8/200 46740 9/225 46741 9/225	No. "/mm "/mm 46289 46290 6/150 3/10 46291 46292 6/150 3/10 46293 46294 7/175 3/10 46295 46296 7/175 3/10 46297 46298 8/200 3/10 46299 46300 8/200 3/10 46740 9/225 13/11	No. "/mm "/mm "/mm "/mm 46289 46290 6/150 \$\frac{3}{8}/10\$ \$1\frac{7}{16}/37\$ 46291 46292 6/150 \$\frac{3}{8}/10\$ \$1\frac{7}{16}/37\$ 46293 46294 7/175 \$\frac{3}{8}/10\$ \$1\frac{9}{16}/40\$ 46295 46296 7/175 \$\frac{3}{8}/10\$ \$1\frac{9}{16}/40\$ 46297 46298 8/200 \$\frac{3}{8}/10\$ \$1\frac{3}{4}/44\$ 46299 46300 8/200 \$\frac{3}{8}/10\$ \$1\frac{3}{4}/44\$ 46740 9/225 \$\frac{13}{2}/11\$ \$1\frac{13}{6}/46\$	No. "/mm "/mm "/mm "/mm "/mm 46289 46290 6/150 \$\frac{3}{4}\text{10} 1 \frac{1}{1\frac{7}{6}}\text{37} \frac{1}{3\frac{7}{2}}\text{12} 46291 46292 6/150 \$\frac{3}{4}\text{10} 1 \frac{1}{1\frac{7}{6}}\text{37} \frac{1}{3\frac{7}{2}}\text{12} 46293 46294 7/175 \$\frac{3}{4}\text{10} 1 \frac{1}{1\frac{7}{6}}\text{40} \frac{1}{3\frac{7}{2}}\text{13} 46295 46296 7/175 \$\frac{3}{4}\text{10} 1 \frac{1}{2\frac{7}{6}}\text{40} \frac{1}{3\frac{7}{2}}\text{13} 46297 46298 8/200 \$\frac{3}{4}\text{10} 1 \frac{1}{2}\text{44} \frac{1}{3\frac{7}{2}}\text{13} 46299 46300 8/200 \$\frac{3}{4}\text{10} 1 \frac{1}{2}\text{44} \frac{1}{3\frac{7}{2}}\text{13} 46740 9/225 \$\frac{1}{3\frac{7}{2}}\text{11} 1 \frac{1}{6}\text{46} \frac{1}{3\frac{7}{2}}\text{15}	No. "/mm "/mm "/mm "/mm "/mm "/mm "/mm "/m	No. "/mm "/mm "/mm "/mm "/mm oz/g 46289 6/150 ½/10 1½/6/37 ½/12 1½/27 8.00/2 46291 6/150 ½/10 1½/6/37 ½/12 1½/27 8.96/2 46292 6/150 ½/10 1½/6/37 ½/12 1½/27 8.96/2 46293 7/175 ½/10 1½/40 ½/13 1½/30 12.00/2 46295 7/175 ½/10 1½/40 ½/13 1½/30 12.00/2 46297 8/200 ½/10 1½/44 ½/13 1½/30 16.00/2 46299 8/200 ½/10 1½/44 ½/13 1½/30 16.00/2 46740 9/225 ½/11 1½/46 ½/15 1½/32 16.96/2

Conforms to U.S. Fed. Spec. GGG-N-350A, Type 1, Class 2, Style A.

Tenite grips for solid joint lineman's pliers



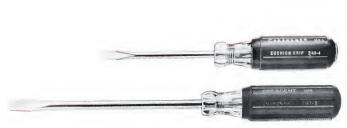
N/S	← L→
No.	"/mm
46160	6/150
46210	7/177
46164	8/200
46856	9/225
	No. 46160 46210 46164

Cushion grip screwdrivers

Cushion grip handles are made of genuine PVC vinyl and have patented interlocking non-slip grip. Oversized handles assure better grip and more turning power. Heavy duty steel alloy chrome plated blades have precision crossground flats and edges.



Mechanic's round



Cat. No.	N/S No.	[] ″/mm	″/mm	 "/mm	oz/g	Shelf Pack
2143-3 2143-3V	46614 46615	3/76	$\frac{7}{32}/5.5$	6 ₁₆ /160	4.32/122	6
2143-4 2143-4V	46616 46617	4/100	1/6	73/197	4.48/127	6
2143-6 2143-6V	46618 46619	6/150	516/8	10½/267	6.40/181	6
2143-8 2143-8V	46620 46621	8/200	3/10	13/330	9.60/272	6
2143-10 2143-10V	46622 46623	10/250	₹/10	15/381	10.72/304	6
2143-12 2143-12V	46624 46626	12/300	₹/10	17/431	11.68/331	6

Conforms to U.S. Fed. Spec. GGG-S-121d, Type 1, Class 5, Style 1, Design B Shape A, with cushion grip.

Mechanic's square



Cat.	N/S No.	[← L→] "/mm	//mm	← L → "/mm	oz/g	Shelf Pack
2343-4 2343-4V	46643 46644	4/100	1/6	7¾/184	4.48/127	6
2343-6 2343-6V	46645 46646	6/150	5 16/8	10½/267	4.80/136	6
2343-8 2343-8V	46647 46648	8/200	³/10	13/330	10.93/310	6
2343-12	46649	12/300	₹/10	17/431	14.40/408	6

Conforms to U.S. Fed. Spec. GGG-S-121d, Type 1, Class 5, Style 1, Design B, with cushion grip.

Electrician's round





C	N/C		<u> </u>	 ← L →		Ch - 14
Cat. No.	N/S No.	"/mm	"/mm	"/mm	oz/g	Shelf Pack
2142-4 2142-4V	46610 46611	4/100	1/6	73/196	4.80/136	6
2142-6 2142-6V	46612 46613	6/150	1/6	9 3 /247	5.33/151	6
2243-3 2243-3V	46629 46630	3/76	3 16/5	6 ⁵ /160	2.88/82	6
2243-4 2243-4V	46631 46632	4/100	3 16/5	7 ₁₆ /185	3.20/91	6
2243-6 2243-6V	46633 46634	6/150	3 16/5	9 ₁₆ /236	3.47/98	6
2243-8 2243-8V	46635 46636	8/200	3 16/5	11 <u>5</u> /287	3.73/106	6
2243-10 2243-10V	46637 46638	10/250	3 16/5	135/338	4.00/113	6

No. 2243 conforms to U.S. Fed. Spec. GGG-S-121d, Type 1, Class 1, Style 2, Design B, with cushion grip.

Insulated special electrician's



Additional sizes available to order.

Cat.	N/S	N/S I I			 ← L →		
No.	No.	"/mm	″/mm	"/mm	oz/g	Shelf Pack	
2401-3	46678	3/76	3 ₁₆ /5	6 ₁₆ /160	2.33/66	6	
2401-4	46679	4/100	1/6	73/197	3.93/112	6	
2401-6	46680	6/150	5/8	10½/267	6.31/179	6	
2401-8	46681	8/200	3 /10	13/330	8.98/255	6	



Cat.	N/S No.	 "/mm	₹	 "/mm	oz/g	Shelf Pack
2343-1‡ 2343-1‡V	46641 46642	11/32	1/6	$3\frac{1}{8}/79$	2.00/57	6

Genuine Phillips



Cat. No.	N/S No.	Point size	ı́— ⊾→ı ″/mm	<u>₹</u>	← L → "/mm	oz/g	Shelf Pack
2501 2501V	46651 46652	no. 1	3/76	$\frac{3}{1.6}/5$	6 5 / 160	2.88/82	6
2502 2502V	46653 46654	no. 2	4/100	1/6	73/197	4.80/136	6
2503 2503V	46655 46660	no. 3	6/150	5 16/8	10½/267	7.20/204	6
2504 2504V	46656 46657	no. 4	8/200	3/10	13/330	11.52/32	7 6

Conforms to U.S. Fed. Spec. GGG-S-121d, Type VI, Class 1, Style 1, with cushion grip.

Phillips stubby



Cat.	N/S No.	Point size	(/mm	₹ ″/mm	← L → "/mm	oz/g	Shelf Pack
2522 2522V	46658 46659	no. 2	11/32	1/6	$3\frac{1}{8}/79$	2.00/57	6

Pozidriv Screwdrivers



N/S	← L →	¥		/	Shelf Pack
No.	"/mm	"/mm	mm /mm	oz/g	Fack
46864	3/76	$\frac{3}{16}/5$	63/162	4.27/121	6
46865	41/114	1/6	87/135	6.16/175	6
46866	6 ³ /162	5 ₁₆ /8	113/289	8.27/234	6
46867	1½/38	1/6	33/84	3.29/93	6
	No. 46864 46865 46866	No. "/mm 46864 3/76 46865 4½/114 46866 6¾/162	No. "/mm "/mm 46864 3/76 3/8/5 46865 4½/114 ½/6 46866 6½/162 5/8/8	No. "/mm "/mm "/mm 46864 3/76 3/8/5 63/162 46865 41/114 1/6 81/8/135 46866 63/162 5/8 113/289	No. "/mm "/mm "/mm oz/g 46864 3/76 3/8/5 63/162 4.27/121 46865 41/114 1/6 81/8/135 6.16/175 46866 63/162 5/8 113/289 8.27/234

Cushion grip screwdriver pack



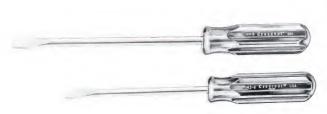
Four popular-sized cushion grip screwdrivers suitable for any job requirement. Packed in an attractive plastic pouch.

Cat. No.	N/S No.	Contents	oz/g	Shelf Pack
270P	46409	2243-6—Electrician's round	19.81/5.63	3
		2143-4—Mechanic's round		
		2143-6—Mechanic's square		
		2502 — Genuine Phillips		

Rhino screwdrivers

Extruded oversized plastic handle makes for extra torque with maximum comfort. Blades made of tough, long lasting alloy steel. Precision ground.

Mechanic's round



Cat. No.	N/S No.	[← L →] "/mm	<u>▼</u>	← L → "/mm	oz/g	Shelf
143-3 143-3V	46345 46346	3/76	$\frac{7}{32}/5.5$	63/162	2.00/57	6
143-4 143-4V	46347 46348	4/100	1/6	73/197	3.47/98	6
143-6 143-6V	46349 46350	6/150	⁵ / ₁₆ /8	10 1 /260	5.87/166	6
143-8 143-8V	46351 46352	8/200	₹/10	13/330	8.53/242	6
143-10 143-10V	46353 46354	10/250	흫/10	15½/395	9.87/280	6
143-12	46355	12/300	₹/10	17½/444	10.67/302	6

Mechanic's square



Cat. No.	N/S No.	ı́— ·→ı ″/mm	″/mm	← 	oz/g	Shelf Pack
343-4 343-4V	46429 46430	4/100	1/6	73/107	3.47/98	6
343-6 343-6V	46431 46432	6/150	⁵ / ₁₆ /8	101/260	6.40/181	6
343-8 343-8V	46433 46434	8/200	₹/10	13/330	9.60/272	6
343-12 343-12V	46435 46436	12/300	3/10	17½/438	13.33/378	6

Screwholding mechanic's point



N/S No.	 "/mm	<u>₹</u> — ″/mm	 "/mm	oz/g	Shelf Pack
46391 46392	3/76	½/3	53/146	0.83/24	6
46393 46394	4/100	1/3	6 ³ /174	1.17/33	6
46395 46396	6/150	1/3	9 ³ /238	1.87/53	6
46397 46398	8/200	1/3	113/289	2.13/60	6
46399 46400	4/100	3 ₁₆ /5	7½/191	2.67/76	6
46401 46402	7/175	3 ₁₆ /5	10½/267	3.07/87	6
46403 46404	8/200	$\frac{9}{32}/7$	121/311	6.72/191	6
	No. 46391 46392 46393 46394 46395 46396 46397 46398 46399 46400 46401 46402 46403	No. "/mm 46391 3/76 46392 3/76 46393 4/100 46395 6/150 46396 8/200 46398 4/100 46400 4/100 46401 7/175 46403 8/200	No. "/mm "/mm 46391 46392 3/76 \$\frac{1}{8}/3 46393 46394 4/100 \$\frac{1}{8}/3 46395 46396 6/150 \$\frac{1}{8}/3 46397 46398 8/200 \$\frac{1}{8}/3 46399 46400 4/100 \$\frac{3}{16}/5 46401 46402 7/175 \$\frac{3}{16}/5 46403 8/200 \$\frac{8}{7}/7	No. "/mm "/mm "/mm 46391 46392 3/76 ½/3 5½/146 46392 4/100 ½/3 6½/174 46395 46396 6/150 ½/3 9½/238 46397 46398 8/200 ½/3 11½/289 46400 4/100 ½/5 7½/191 46401 7/175 ½/5 10½/267 46403 8/200 ½/7 12½/311	No. "/mm "/mm "/mm oz/g 46391 46392 3/76 \$\frac{1}{8}/3\$ 5\frac{3}{4}/146 0.83/24 46393 46394 4/100 \$\frac{1}{8}/3\$ 6\frac{3}{4}/174 1.17/33 46395 46396 6/150 \$\frac{1}{8}/3\$ 9\frac{3}{8}/238 1.87/53 46397 46398 8/200 \$\frac{1}{8}/3\$ 11\frac{3}{8}/289 2.13/60 46399 46400 4/100 \$\frac{3}{16}/5\$ 7\frac{1}{2}/191 2.67/76 46401 46402 7/175 \$\frac{3}{16}/5\$ 10\frac{1}{2}/267 3.07/87

Screwholding Phillips point



Cat.	N/S No.	Point size	← 	<u>₹</u> — ″/mm	 ″/mm	oz/g	Shelf Pack
261-3 261-3V	46405 46406	no. 1	3/76	$\frac{3}{1.6}/5$	$6\frac{3}{8}/162$	1.87/53	6
262-4 262-4V	46407 46408	no. 2	4/10	1/6	7 3 /197	3.73/106	6

Electrician's round



Cat.	N/S No.	["/mm	<u>₹</u> — ″/mm	← L → "/mm	oz/g	Shel Pack
243-3 243-3V	46375 46376	3/76	$\frac{3}{16}/5$	63/162	1.76/50	6
243-4 243-4V	46377 46378	4/100	$\frac{3}{16}/5$	7½/190	2.13/60	6
243-6 243-6V	46379 46380	6/150	$\frac{3}{16}/5$	9½/241	2.67/76	6
243-8 243-8V	46381 46382	8/200	3 16/5	11½/292	3.20/91	6
243-10	46383	10/250	3 16/5	$13\frac{1}{2}/343$	3.47/98	6

Electronic thin blade



Cat. No.	N/S No.	(<u>¥</u> —— ″/mm	 "/mm	oz/g	Shelf Pack
244-4 244-4V	46385 46386	4/100	$\frac{9}{64}/4$	6≩/171	1.07/30	6
244-6 244-6V	46387 46388	6/150	$\frac{9}{64}/4$	83/222	1.20/34	6
244-8 244-8V	46389 46490	8/200	$\frac{9}{64}/4$	10 3 /273	1.60/45	6

Stubby



Cat.	N/S	[← L →]	₹ 	← L →	oz/g	Shelf
No.	No.	"/mm	″/mm	"/mm		Pack
443-1 1 443-1 1 V	46476 46477	11/32	1/6	$3\frac{1}{8}/78$	2.00/57	6

Genuine Phillips



Cat. No.	N/S No.	Point size	<u> ← ι → </u> " /mm	₹	← L → "/mm	oz/g	Shelf Pack
300 300V	46410 46411	no. O	3/76	½/3	53/146	0.96/27	6
301 301V	46413 46414	no. 1	3/76	$\frac{3}{1.6}/5$	63/162	2.13/60	6
302 302V	46415 46416	no. 2	4/100	1/6	73/187	5.33/151	6
303 303V	46417 46418	no. 3	6/150	5 16/8	101/260	5.87/166	6
304	46419	no. 4	8/200	3 /10	13/330	8.53/242	6
331 331V	46425 46426	no. 1	8/200	3 16/5	11½/292	2.67/76	6
332 332V	46427 46428	no. 2	6/150	1/6	93/247	4.00/113	6

Phillips stubby



Cat.	N/S No.	Point size	← L → "/mm	″/mm	[← L →] "/mm	oz/g	Shelf Pack
311 311V	46421 46422	no. 1	1/25	$\frac{3}{1.6}/5$	$2\frac{7}{8}/73$	0.91/26	6
322 322V	46423 46424	no. 2	11/32	1/6	$3\frac{1}{8}/79$	1.92/54	6

Pocket with clip screwdriver



Cat. No.	N/S No.	[← ι →] "/mm	[₹] /mm	← ∟ → " /mm	oz/g	Shelf Pack
543-2 543-2V	46484 46485	2/50	½/3	41/104	0.60/17	12

Rhino screwdriver pack



Four popular-sized screwdrivers in a convenient reusable plastic pouch.

Cat. No.	N/S No.	Contents		helf ack
	46537	143-4—Mechanic's round	19.34/5.48	3
		143-6—Mechanic's square		
		243-6—Electrician's round		
		304—Genuine Phillips		

Rhino screwdriver set



Six popular-sized screwdrivers in a convenient reusable plastic pouch.

Cat. No.	N/S No.	Contents	oz/g	Shelf Pack
RR6	46773	243-3—3"/76mm Electrician's round	27.50/779	1
		243-6—6"/150mm Electrician's round	4	
		343-4-4"/100mm Mechanic's square	е	
		343-8—8"/200mm Mechanic's square	е	
		301-No. 1 Genuine Phillips		
		303-No. 3 Genuine Phillips		

Bridgeport® screwdrivers

Contoured handles and precision ground blades ensure firm grip with maximum comfort. Heavy duty steel alloy blades, fully polished with a plated finish for strength and durability.

Mechanic's round



N/S	← L →	<u>*</u>	← L →		Shelf
No.	"/mm	"/mm	"/mm	oz/g	Pack
46871	3/76	1/6	7/178	2.00/57	6
46872	4/100	1/6	8/200	3.47/98	6
46873	6/150	5 ₁₆ /8	101/260	5.97/169	6
46874	8/200	₹/10	113/298	8.64/245	6
	No. 46871 46872 46873	No. "/mm 46871 3/76 46872 4/100 46873 6/150	No. "/mm "/mm 46871 3/76 ½/6 46872 4/100 ½/6 46873 6/150 ½/8	No. "/mm "/mm "/mm 46871 3/76 ½/6 7/178 46872 4/100 ½/6 8/200 46873 6/150 ½/8 10½/260	No. "/mm "/mm "/mm oz/g 46871 3/76 ½/6 7/178 2.00/57 46872 4/100 ½/6 8/200 3.47/98 46873 6/150 ½/8 10½/260 5.97/169

Mechanic's square



Cat. No.	N/S No.	/— L → "/mm	″/mm	 "/mm	oz/g	Shelf Pack
3343-4	46882	4/100	1/6	8/200	3.47/98	6
3343-6	46883	6/150	5/8	101/260	6.40/182	6
3343-8	46884	8/200	₹/10	121/310	9.63/273	6

Electrician's round



Cat.	N/S		<u>*</u>	← L →		Shelf
No.	No.	"/mm	"/mm	"/mm	oz/g	Pack
3243-3	46875	3/76	3 16/5	7/178	1.76/50	6
3243-6	46876	6/150	3/5	10/250	2.67/76	6

Genuine Phillips



Cat.	N/S No.	 ″/mm	₹ — ″/mm	[← L →] "/mm	oz/g	Shelf Pack
3301	46877	3/76	3 ₁₆ /5	7/178	2.12/60	6
3302	46878	4/100	1/6	8/200	5.34/151	6
3303	46879	6/150	5/8	101/260	5.97/169	6

Stubby



Cat. No.	N/S No.	(<u>₹</u> — ″/mm	″/mm	oz/g	Shelf Pack
3343-11	46881	11/32	1/6	31/82	2.00/57	6

Phillips Stubby



Cat.	N/S	<u> ← L → </u>	Y -	+- L>		Shelf
No.	No.	"/mm	"/mm	"/mm	oz/g	Pack
3322	46880	13/35	1/6	3 ₈ /85	1.87/53	6

Bridgeport®screwdriver packs

Popular-sized screwdrivers in a convenient reusable plastic pouch.

Cat. No.	N/S No.	Contents	oz/g	Shelf Pack
333P	46893	3301,3302,3303	14.43/380	3
335P	46894	3301,3302,3343-1 1 3243-6,3343-4	15.60/467	3

Scratch awls

Cushion grip



No.	N/S No.	"/mm	(/mm	oz/g	Shelf Pack
2245 2245V	46639 46640	37/98	7½/191	3.47/98	6

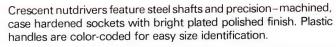
Wood handle



Cat.	N/S No.	[← ι →] "/mm	/— L → "/mm	oz/g	Shelf Pack
73 73V	46301 46302	37/98	65/168	3.33/94	6

Crescent nutdrivers







Cat.	N/S No.	Color code	Hex. opening	Shaft length	Handle size	Shelf Pack
700-3 700-3 700-3 700-3	46742 46743	Black	3 " 16"	31"	1 ₁₆ " x3 ₈ "	6
700- 1 700- 1 V	46746 46747	Red	1"	31	1½" x4½"	6
700-5 700-5 700-5 700-5	46750 46751	Amber	5 " 16"	31"	1½" x4½"	6
700-11 700-11 700-11 700-11	46752 46753	Green	11 " 32"	31"	1½" x4½"	6
700-3 700-3 V	46754 46755	Blue	3 "	31"	1½" x4½"	6
700-7 700-7 700-7 16	46756 46757	Brown	7 16	31″	1½" x4½"	6
700-½ 700-½ 700-½V	46758 46759	Red	1/2"	31"	1½" x4½"	6
700-9	46760	Orange	9 "	31"	1½" x4½"	6

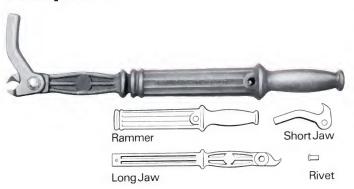
Note: To order carded nutdrivers, add suffix "V". (Example 700-75V)

Nutdriver pouch set

Contains 7 drivers, all with full hollow shaft.

Cat. No.	N/S No.	Contents			Shelf Pack
700P	46762	700 1³6" 700 ¼" 700 15"	700 \frac{11}{32}" 700 \frac{3}{8}" 700 \frac{7}{16}"	700 ½"	1

Nail puller



Box-joint forged tempered jaws - black enamelled finish.

Cat.	N/S	← L→	Full extension	ı	Shelf
	No.	"/mm	"/mm	lb/g	Pack
56	46284	19/483	24/610	3.86/1899	3

Conforms to U.S. Fed. Spec. GGG-P-79lb, Type 1, Class-1. Order nail puller parts by specifying both catalogue number and part name.

No.

56LJ (46285) long jaw 56SJ (46288) short jaw 56R/P (46286) rammer and pin 56R (46287) rivet

Three-piece kit



Contains adjustable wrench, slip joint pliers and Rhino screwdriver. Vinyl case with snap fastener.

Cat. No.	N/S No.	Contents	Shelf Pack
TK31	46268	L26-6" thin nose slip joint pliers AC18 -8 " chromium plated adjustable wrench 143-4 -4 " Rhino screwdriver	1
TK31V	46870	same contents as TK31 except pliers, wrench and screwdriver are skin packed on hang-up card	1

Pliers kit



Four pliers all drop forged from a fine alloy steel and fitted with cushion grips.

Cat. No.	N/S No.	Contents	Shelf Pack
PL-4 4677	46774	50-7C-7"/178mm lineman's pliers	1
		942-5C-5"/125mm diagonal cutting	
		G26C-6"/150mm slip joint	
		1033-6C-6"/150mm needle nose pliers	

Multi-Purpose Tool Kit



This versatile kit contains 11 quality tools, perfect for all types of routine repair and simple do-it-yourself projects. Everything comes neatly packaged in an attractive, easy-to-store case.

Cat. N/S No. No.		Contents			
CTK-11	46800	143-4— ‡"/6mm x 4"/102mm Round Blade Screwdriver	3		
		$244-4-\frac{1}{8}$ " / 3.17mm x 4"/102mm Round Blade Screwdriver			
		301—No. 1 Phillips x 3"/76mm Screwdriver			
		8- ‡"/6mm Hex Nutdriver			
		P12S—No. 0 Phillips x 2"/51mm Screwdriver			
		654-6-6"/152mm Long Nose Pliers with Side Cutter			
		AC16C-6"/152mm Adjustable Wrench			
		443-1 $\frac{1}{4}$ - $\frac{1}{4}$ "/6mm x 1 $\frac{1}{4}$ "/32mm Stubby Square Blade Screw	ewdriver		
		100-X—Wire Stripper & Cut Adj. Screw Top			
		W9210ME—½"/13mm x 10'/3m Metric/English Tape Rule			
		G26-6"/150mm Combination Pliers. Chrome Plated			

TC17 Tool chest

17 piece set: High impact molded toolchest with tray and 15 quality tools for home and professional

limanaiana, 10

Dimensions: 19"/432mmx

6½"/165mmx 4½"/114mm Weight: 7 lb/3.17 Kg



Cat.	N/S No.	Qty.	Contents	lb/kg	Shelf Pack
TC17	46863	1	8"/200mm adjustable wrench	7/3.17	1
		1	7"/178mm tongue and groove pliers		
		1	6"/150mm slip joint pliers		
		3	screwdrivers		
		1	wood handle awl		
		1	hacksaw		
		4	blades (10"/250mm and 12"/300mm)		
		1	four-in-hand file		
		1	6'/2m tape		
		1	10 oz. ripping hammer		

Crescent Modules

For use with the Cooper Tool Wall. For additional information regarding the Cooper module system see the last 2 pages of this catalog.

TW-1 (46802) Chrome adjustable wrench module



Size: 16"/400mm x 16"/400mm (B) Shipping weight: 11 lb/5 Kg Contains: Two (2) Each AC16V, AC18V, AC110V, AC112V. TW1A (46803) refill assortment only.

TW-2 (46804) Black adjustable wrench module



Size: 16''/400mm x 16''/400mm (B) Shipping weight: $10 \text{ lb/}4\frac{1}{2}$ Kg Contains: Two (2) Each AT16V, AT18V, AT110V, AT112V. TW-2A (46805) refill assortment only.

TW-3 (46806) Slip joint pliers module



Size: 16''/400mm x 13''/330mm (C) Shipping weight: $10 lb/4\frac{1}{2}$ Kg. Contains: Three (3) Each G26V, G28V, L26V, H26V, H28V. TW-3A (46807) refill assortment only.

TW-4 (46808) Tongue and Groove pliers module



Size: 16''/400mm x 16''/400mm (B) Shipping weight: $12\frac{1}{4}$ lb/ $5\frac{1}{2}$ Kg Contains: Two (2) Each R27CV, R212CV, Four (4) R210CV. TW-4A (46809) refill assortment only.

TW-5 (46810) Solid joint pliers module



Size: 16"/400mm x 29"/740mm (A)
Shipping weight: 14¼ lb/6½ Kg
Contains: Two (2) Each 50-8CV, 72-7CV,
542-7CV, 654-6CV, 654-7CV,
777-6CV, 942-5CV, 942-6CV,
1033-6CV.
TW-5A (46811) refill assortment only.

TW-6 (46812) Cushion grip screwdriver module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 16½ lb/7½ Kg Contains: Three (3) Each 2143-4V, 2143-6V, 2143-8V, 2343-4V, 2343-6V, 2243-6V, 2501-3V, 2502-4V, 2343-1¼V, 2522-1¼V. TW-6A (46813) refill assortment only.

TW-7 (46814) Rhino screwdriver module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 14¾ lb/6.70 Kg Contains: Three (3) Each 143-4V, 143-6V, 143-6V, 343-4V, 343-6V, 243-6V, 301-V, 302-V, 443-1¼V, 322-V.

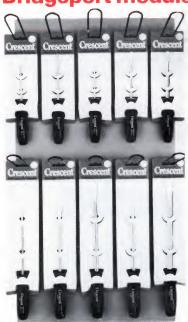
TW-7A (46815) refill assortment only.

TW-8 (46820) Nutdriver module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 11\frac{3}{4} lb/5\frac{1}{4} Kg Contains: Three (3) Each 700-3/16V, 700-5/16V, 700-11/32V, 700-\frac{3}{8}V, 700-7/16V, 700-\frac{1}{2}V, Six (6) 700-\frac{1}{4}V. TW-8A (46821) refill assortment only.

TW-58 (46890) Bridgeport module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 14¾ lb/6.70 Kg Contains: Three (3) Each 3143-4, 3143-6, 3143-8, 3243-3, 3243-6, 3301, 3302, 3343-4, 3343-6, 3343-8. TW-58A (46891) refill assortment only.

TW-9 (46822) Hollow shaft nutdriver module



Size: 16''/400mm x 13''/330mm (C) Shipping weight: $9\frac{1}{2}$ lb/ $4\frac{1}{4}$ Kg Contains: Three (3) Each $700\frac{3}{16}$, $700\frac{5}{16}$, $700\frac{1}{32}$, $700\frac{3}{8}$, $700\frac{7}{16}$, $700\frac{1}{2}$, Six (6) $700\frac{1}{4}$. TW-9A (46823) refill assortment only.

TW-55 (46816) Open stock cushion grip screwdriver module



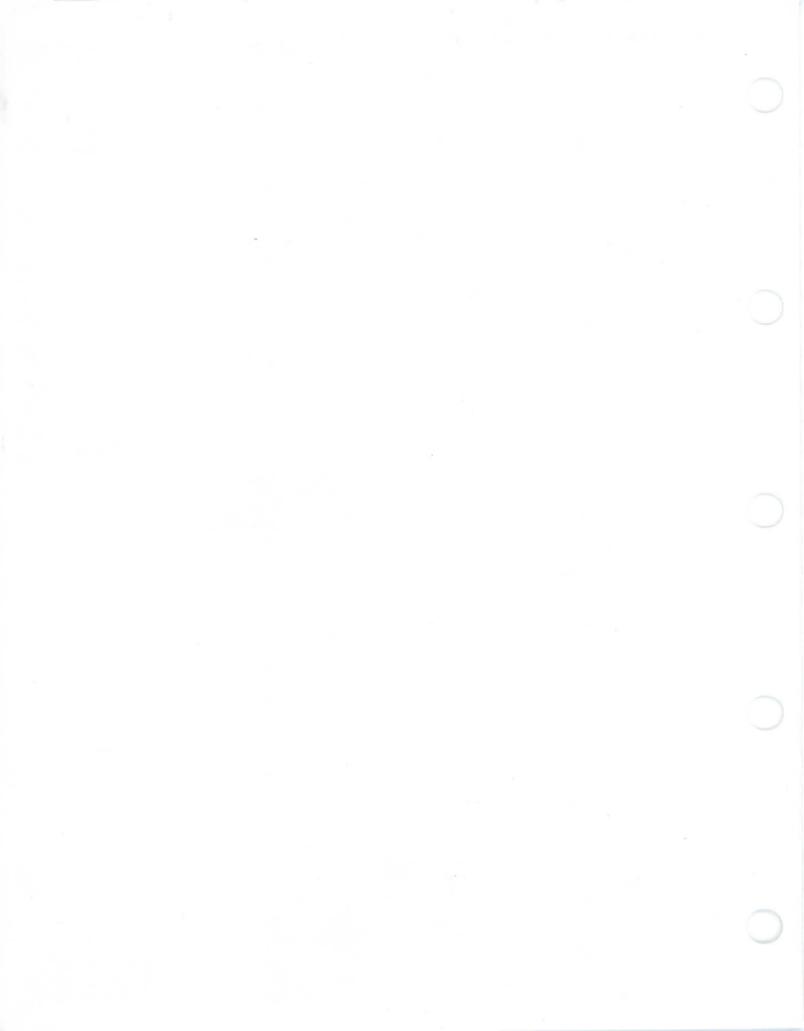
Size: 16" /400mm x 16" /400mm (B) Shipping weight: 15¼ lb/6.90 Kg Contains: Three (3) Each 2143-4, 2143-6, 2143-8, 2343-4, 2245, 2243-3, 2243-6, 2501, 2502, 2142-4, 2142-6. TW-55A (46817) refill assortment only.

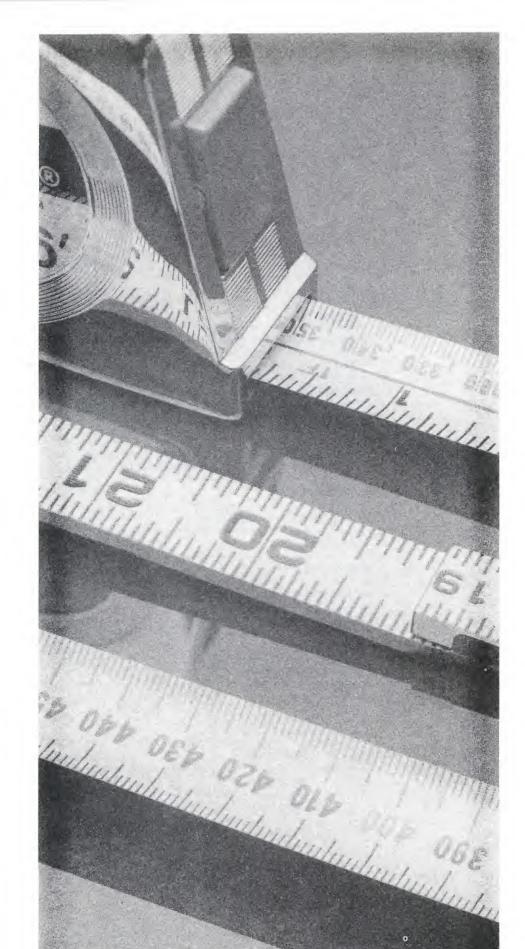
TW-56 (46818) Open stock Rhino screwdriver module



Size: 16''/400mm x 16''/400mm (B) Shipping weight: $14\frac{1}{2}$ lb/ $6\frac{1}{2}$ Kg Contains: Three (3) Each 143-3, 143-4, 143-6, 143-8, 343-4, 343-8, 243-3, 243-6, 244-6, 301, 302, 443- $1\frac{1}{4}$, 322. TW-56A (46819) refill assortment only.

Cat. No.	Page	Cat. No.	Page	Cat. No.	Page	Cat. No.	Page	Cat. No.	Page	Cat. No.	Page
6N	C 17	247-3	C20	700-1 V	C23	1950-8CV	C 15	AC 14J	C3	AT 1 18	C2
7N 8	C17 C24	247-3V 247-4	C20 C20	700- 1/8 700- 1/8 V	C23 C23	2050-9 2050-9C	C 15 C 15	AC 14K AC 14P	C3 C4	AT118J AT118K	C3
8N	C17	247-4V	C20	700-1	C23	2050-9T	C 15	AC14V	C 1	AT118P	C4
9N	C 17	247-6	C20	700-111V	C23	2050-SCV	C15	AC14CV	C2	CTK-11	C24
20-4 } SCP 21-4 } SC	C13 C13	247-6V 247-8	C20 C20	700- ∄ 700- ∄ ∨	C23 C23	2142-4 2142-4V	C 18 C 18	AC 16 AC 16C	C1 C1	625 625V	C6 C6
21-6	C13	247-8V	C20	700- 76	C23	2142-6	C 18	AC 16J	С3	626	C6
21-6C	C13	248-4	C20	700- 1-	C23	2142-6V	C 18	AC 16K AC 16P	C3 C4	626V	C6
21-6CV 21-6SC	C13 C13	248-4V 248-7	C20 C20	700- ½ 700- ½ V	C23 C23	2143-3 2143-3V	C 17 C 17	AC 16V	C1	628 628V	C6 C6
22-4SC	C11	248-7V	C20	700- 198	C23	2143-4	C 17	AC16CV	C2	6210	C6
22-5	C11	249-8	C20	700- ₁³₅ ∨ 700P	C23	2143-4V	C17	AC 18 AC 18C	C1 C2	6210V	C6
22-5C 22-5V	C11	249-8V 261-3	C20 C20	742-7	C23 C10	2143-6 2143-6V	C 17 C 17	AC 18I	C1	H26 H26V	C6 C6
22-5CV	C11	261-3V	C20	742-7C	C 10	2143-8	C 17	AC 18J	C3	H28	C6
22-5 S C	C11	262-4	C20	775-41 SC	C 12	2143-8V	C17	AC 18K AC 18P	C3 C4	H28V	C6
23-7 23-7C	C13 C13	262-4V 270P	C20 C19	775-5SC 777-6	C 12 C 12	2143-10 2143-10V	C17 C17	AC 18V	C1	J26 J26V	C6 C6
23-7C 23-7SC	C13	300	C21	776-6SC	C 13	2143-107	C 17	AC18CV	C2	L25	C6
25-4 J SC	C10	300V	C21	777-6V	C12	2143-12V	C 17	AC 110	C1	L25V	C6
25-41 SC	C10	301 301V	C21 C21	777-6C 777-6CV	C 12 C 12	2150-8	C 15	AC 1 10C AC 1 10I	C2 C1	L26 L26V	C6 C6
25-4	C 10 C 13	301	C21	777-6CV 777-6SC	C 12	2150-8C 2150-8T	C 15 C 15	AC 110J	C3	L28V	C6
50-6	C 14	302V	C21	777-7	C 12	2243-3	C 18	AC 110K	C3	L28V	C6
50-6C	C 14	303	C21	777-7C	C 12	2243-3V	C 18	AC 110P	C4 C1	LS26	C7
50-6V 50-6CV	C 14 C 14	303V 304	C21 C21	777-7V 777-7CV	C 12 C 12	2243-4	C 18	AC 110V AC 110C V	C2	LS26V P12	C7 C24
50-6C V 50-6T	C 14	304V	C21	777-7SC	C 12	2243-4V 2243-6	C 18 C 18	AC 112	C1	PBN5	C5, C7
50-7	C 14	311	C21	888-6	C 12	2243-6V	C 18	AC112C	C2	PBN6	C5, C7
50-7C	C 14	311V 322	C21 C21	888-6C 888-6SC	C 12 C 12	2243-8	C 18	AC 112I AC 112J	C 1 C3	PBN10 PBN27	C5, C7 C5, C7
50-7V 50-7CV	C 14 C 14	322V	C21	923-7	C7	2243-8V 2243-10	C 18 C 18	AC 112K	C3	PBN210	C5, C7
50-7T	C 14	331	C21	940-6	C8	2243-10V	C 18	AC112P	C4	PBN212	C5, C7
50-8	C 14	331V	C21	940-6C	C8	2245	C23	AC112V	C1	PL-4 R27	C24 C5
50-8C 50-8V	C14 C14	332 332V	C21 C21	940-6SC 941-4SC	C8	2245V 2343-1}	C23 C18	AC112CV AC115	C2 C1	R27C	C5
50-8CV	C 14	333P	C22	941-4SCE	C8	2343-11V	C 18	AC 115J	С3	R27V	C5
50-8T	C 14	335P	C22	942-4	C9	2343-4	C17	AC 115K	C3	R27CV	C5
56 56R	C23 C23	343-4 343-4V	C 19 C 19	942-4C 942-4CV	C9	2343-4V	C 17	AC 115P AC 118	C4 C1	R210 R210C	C5 C5
56U	C23	343-6	C 19	942-4SC	C9	2343-6 2343-6V	C 17 C 17	AC 118J	C3	R210V	C5
56RP	C23	343-6V	C19	942-41 SC	C9	2343-8	C17	AC118K	С3	R210CV	C5
56SJ	C23	343-8	C19	942-5	C9	2343-8V	C 17	AC118P	C4 C1	R212 R212C	C5 C5
72-6 72-6C	C 16 C 16	343-8V 343-12	C19 C19	942-5C 942-5V	C9	2343-12 2401-3	C 17 C 18	AC 124 AC 124J	C3	R212V	C5
72-6V	C 16	343-12V	C 19	942-5CV	C9	2401-4	C18	AC 124K	С3	R212CV	C5
72-6CV	C 16	443-11	C20	942-5SC	C9	2401-6	C 18	AC 124P	C4	R214C	C5
72-7 72-7C	C16 C16	443-1∦V 542-7	C20 C10	945-5 S CV 942-6	C9	2401-8 2501	C 18 C 18	AC Kit ACV	C3 C3	R214CV R220	C5 C5
72-70 72-7V	C 16	542-7C	C 10	942-6C	C9	2501V	C 18	AT14	C2	R220C	C5
72-7CV	C 16	542-71	C 10	942-61	C9	2502	C 18	AT14C	C2	R220CV	C5
72-8 72-8C	C 16 C 16	542-7V 542-7CV	C 10 C 10	942-6V 942-6CV	C9 C9	2502V 2503	C 18 C 18	AT 14C AT 14J	C2 C3	R410 R410C	C5 C5
72-80 72-8V	C16	542-7CV 542-8	C10	942-4SC	C9	2503V	C 18	AT14K	C3	R410V	C5
72-8CV	C16	542-8C	C 10	943-5SC	C9	2504	C 18	AT14P	C4	R410CV	C5
72-9	C16	542-81 543-2	C 10	946-4} SCE 951-4SCE	C9 C9	2904V	C 18 C 18	AT14V T14C	C1 C2	R414C RP-AC	C5 C4
72-9C 72-9V	C 16 C 16	543-2V	C21 C21	1000-8	C16	2522 2522	C 18	AT16	C2	RP-AT	C4
72-9CV	C 16	622-5	C11	1000-10	C16	2522V	C 18	AT16C	C2	RR-6	C21
73	C23	622-5C	C11	1000-12	C16	2701	C 19	AT16J	C3	TC-17	C25
73V 100-X	C23 C24	622-5V 622-5CV	C11 C11	1033-5 } 1033-5 } SC	C11 C11	2702 2703	C 19 C 19	AT16K AT16P	C3 C4	TK31 TK31V	C24 C24
143P	C21	622-5SC	C11	1033-6	C11	2722	C 19	AT16V	C1	TW-1	C25
143-3	C 19	650-7	C14	1033-6C	C11	3143-3	C22	T16CV	C2	TW-1A	C25
143-3V	C 19 C 19	650-7C 650-7V	C 14 C 14	1033-6V 1033-6CV	C11	3143-4 3143-6	C22 C22	AT18 AT18C	C2 C2	TW-2A	C25 C25
143-4 143-4V	C 19	650-7CV	C14	1033-6SC	C11	3143-8	C22	AT 18I	C2	TW-3	C26
143-6	C 19	650-7 S C	C 14	1033-7	C11	3243-3	C22	AT18J	С3	TW-3A	C26
143-6V	C 19	654-5 }	C10	1033-7C	C11	3243-6	C22	AT18K	C3	TW-4A	C25 C25
143-8 143-8V	C 19 C 19	654-5 ∤ ∨ 654-6	C 10 C 10	1033-7CV 1033-7SC	C11 C11	3301 3302	C22 C22	AT18P AT18V	C4 C1	TW-5	C26
143-10	C 19	654-6C	C 10	1033-7V	C11	3303	C22	AT18CV	C2	TW-5A	C26
143-10V	C 19	654-61	C 10	1936-10	C 16	3322	C22	AT 1 10	C2	TW-6	C26
143-12 143-12V	C 19 C 19	654-6V 654-6CV	C10 C10	1936-10C 1936-10V	C11 C16	3343-1} 3343-4	C22 C22	AT110C AT110I	C2 C2	TW-6A TW-7	C26 C26
200SCED	C8	654-6SC	C 10	1936-10CV	C16	3343-6	C22	AT 1 10 J	C3	TW-7A	C26
243-3	C20	654-7	C 10	1950-6	C 15	3343-8	C22	AT 1 10K	C3, C4	TW-8	C26
243-3V	C20	654-7C	C 10	1950-6C	C15	3800-6	C 16	AT110P	C4	TW-8A TW-9	C26 C26
243-4 243-4V	C20 C20	654-7I 654-7V	C 10 C 10	1950-6CV 1950-6T	C 15 C 15	3800-6C 3800-6T	C16 C16	AT110V AT110CV	C2 C2	TW-9A	C26
243-47	C20	654-7CV	C 10	1950-6V	C15	3800-7	C16	AT112	C2	TW-55	C29
243-6V	C20	654-7SC	C 10	1950-7	C 15	3800-7C	C16	AT112C	C2	TW-55A	C29
243-8	C20 C20	665-5 \(\) SC 666-4 \(\) SCP	C11 C11	1950-7C 1950-7CV	C 15 C 15	3800-7T	C 16	AT 1 12J	C3 C3, C4	TW-56 TW-56A	C29 C29
243-8V 243-10	C20	666-6	C 12	1950-7C V	C 15	3800-8 3800-8C	C 16 C 16	AT112K AT112P	C3, C4	TW-58A	C28
244-4	C20	666-6C	C12	1950-7V	C 15	3800-8T	C16	AT112V	C2	TW-58A	C28
244-4V	C20	666-8CV	C12	1950-8	C 15	AC 1	C3	AT112CV	C2		
244-6 244-6V	C20 C20	666-6SC 700- 1%	C12 C23	1950-8C 1950-8I	C 15 C 15	AC1 AC1V	C3	AT115 AT115J	C2 C3		
244-8	C20	700-1€ V	C23	1950-8T	C 15	AC 14	C 1	AT115K	C3		
	C20	700-1	C23	1950-8V	C15	AC 14C	C2	AT115P	C4		





CooperTools

Lufkin

For over a century the name of Lufkin® has been associated with quality measuring tools. Lufkin short, long, pocket and special purpose tapes are joined by a host of other products matched to the needs of the architect, surveyor, home craftsman, carpenter in fact, everyone who measures. Lufkin was appointed official supplier of measuring tapes to the 1976 and 1980 Olympic Games.

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Note:

N/S No. is an abbreviation for NIDA/SIDA Number.

Key to symbols

	Blade length	
<u>_</u>	Blade width	
	Blade style	

Short tapes

Blades are finished with an abrasive resistant coating for durability and long life. Two color easy-to-read markings. Self-adjusting end hooks. Metric, Metric/English and English. Refills available.

Ultralok™ specifications

Spring

- High quality, tempered spring steel anchored to center
- Stress winding technique gives natural action blade return.

- Molded from the same high-impact material found in ME telephones and racing drivers' helmets.
- Highly polished, electroplated chromium finish.
- Reduces weight by as much as 40% compared with metal cases
- Sure grip serrated edges prevent slipping

Short tapes

Prefixes

Chrome clad C-Replacement blade R-

Yellow clad W or Y—

Suffixes

CM-

D-

CME-

Metric graduations M-

Metric/English graduations, millimeter numbering

Metric/centimeter numbering Metric/English graduations,

centimeter numbering

English graduated feet and decimal feet along one edge, feet and inches along other

edge



 Smooth action by separating measuring blade from spring and case sides—acts as a double bearing

 Solid center post extending completely across case keeps nylon spool running smoothly

Lock

- Large button conveniently positioned at front of case.
- Holds measuring blade securely at any length

End hook

- Plated rust resistant finish
- Self-adjusting for accurate inside or outside measurement.

Belt clip

Removable belt clip of electro-plated spring steel

Refills

- Always available.
- · Easily changed by customer or dealer.

Measuring blade

- High quality tempered spring steel.
- · Baked enamel finish.
- Red and black graduations.
- Transparent abrasive resistant coating. Available in yellow and chrome clad finish and in widths of ¼"/6mm, ½"/13mm, ¾"/19mm and 1"/25mm and up to 26'/8m long
- Blade graduations in English, Metric/English or Metric

Shock absorber

 Cushions natural action measuring blade return, reducing end hook damage

Ultralok™

All yellow clad. Ultralok tapes have exclusive new Ultramatte non-glare blades. This special coating also enables user to write on blade and wipe off.



Cat. No.	N/S No.	"/mm x '/m	Blade Style		Pack Wt. lb/kg	Repl. Blade No.	N/S No.
Y28	45048	⅓ ″ x8′	A1	6	1.4/.66	RY28 (RY8) (RW8)	45017
Y210	45136	½" ×10'	A1	6	1.7/.78	RY210 (RY10)(RW10)	45023
Y212	45139	1" ×12"	Α1	6	1.7/.78	RW12(RY12)(RY212)	45038
Y12(Y312)	45032	₹"×12"	A2	6	2.2/.98	RW312 (RY312)	45220
Y16 (Y316)	45039	₹"× 16"	A2	6	3.3/1.3	RW316 (RY316)	45233
Y25 (Y325)	45046	₹"×25"	A2	6	4.7/2.1	RY325	45325
Y116 (Y416)	45662	1" x 16'	A2	6	4.1/1.9	RY416 (R416)	45713
Y125 (Y425)	45663	1" x 25'	A2	6	6.0/2.7	RY425 (R425)	45704
C212X	45664	½" x 12'	А3	6	1.8/.82	RC212X (RC12X)	45036
W312D (12D)	45030	₹" x 12"	Α4	6	2.3/1.0	RW312D	45935
W325D (25D)	45727	∄" × 25'	A4	6	_	_	
W33CMD (W933MD		3" x 10'/3m	A5	6	2.2/1.0	_	45056
Y23CM (Y210M)	45137	⅓ ″ x 3m	A29	6	1.7/.78	_	
Y23CME (Y210ME)	45138	½" x 10'/3m	A28	6	1.7/.78	_	
Y35ME (Y16ME)	45041	₹"/19mm x 16'/5m	A12	6	3.2/1.4	RY35ME(RY316ME)	45234
Y38ME (Y26ME)	45717	¾"×26′/8m	A12	6	4.7/2.1	RY38ME(RY326ME)	45711
Please see pages 7—	10 for bla	ade styles.					

Order by catalog number and/or replacement number shown in bold.

Ultralok™ cont.

The following tapes are available for export



Cat. No.	N/S No.	"/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No
Y22CME	_	½"/13mm x 6'/2m	A28	6	1.3/.59	RY22CME	
Y23CME	_	½"/13mm x 10'/3m	A28	6	1.7/.77	RY23CME	
Y24CME	_	½"/13mm x 13'/4m	A28	6	2.0/.92	RY24CME	
Y25CME	_	½"/13mm x 16'/5m	A28	6	2.3/1.0	RY25CME	
Y33CME	_	3"/19mm x 10'/3m	A28	6	2.3/1.0	RY33CME	
Y34CME	_	3"/19mm x 13'/4m	A28	6	2.8/1.3	RY34CME	
Y35CME	_	₹"/19mm x 16'/5m	A28	6	3.1/1.4	RY35CME	
Y35ME	_	3"/19mm x 16'/5m	A28	1	3.1/1.4	RY35ME	
Y38CME	_	3"/19mm x 26'/8m	A28	6	4.6/2.1	RY38CME	
Y45CME		1"/25mm x 16'/5m	A29	6	4.5/2.1	RY45CME	
Y48CME	_	1"/25mm x 26'/8m	A29	6	6.6/3.0	RY48CME	
Y22CM	_	13mm x 2m	A29	6	1.3/.59	RY22CM	
Y23CM	_	13mm x 3m	A29	6	1.7/.77	RY23CM	
Y24CM	_	13mm x 4m	A29	6	1.7/.77	RY24CM	
Y25CM	_	13mm x 5m	A29	6	2.3/1.0	RY25CM	
Y33CM	_	19mm x 3m	A29	6	2.3/1.0	RY33CM	
Y34CM	_	19mm x 4m	A29	6	_	RY34CM	
Y35CM	_	19mm x 5m	A29	6	3.1/1.4	RY35CM	
Y38CM	_	19mm x 8m	A29	6	4.6/2.1	RY38CM	

Please see pages 7—10 for blade styles.





Yellow clad. Push button controlled blade return and positive blade locking make this the only completely automatic tape rule. Removable belt clip. Available in widths of $\frac{1}{2}''/13\text{mm}$ and $\frac{3}{4}''/19\text{mm}$ and up to 16'/5m in length. Bold graduations with black and red numbers make for accurate measuring. Y7210MEX is designed for industrial application where metric and decimal measurement is practical.

45530					No.	No.
	₹" × 12"	A2	6	2.3/1.0	RW312 (RY312)	45220
45532	¾" x 16′	A2	6	3.0/1.3	RW316 (RY316)	45233
45867	½" x 8'	Α1	6	1.4/.64	RY28 (RY8) (RW8)	45017
45868	₹" × 10"	A1	6	1.6/.76	RY210 (RY10) (RW10)	45023
45526	½"/13mm x¾"/19mm	A15	6	1.6/.75	RY10MEX (RY10MEX)	45025
45869			6	1.7/.79	RW12(RY12)(RY212)	45038
4	45867 45868 45526	45532 ¾" x 16" 45867 ½" x 8" 45868 ½" x 10" 45526 ½"/13mm x¾"/19mm	45532 ¾" x 16' A2 45867 ½" x 8' A1 45868 ½" x 10' A1 45526 ½"/13mm x¾"/19mm A15	45532 ¾" x 16" A2 6 45867 ½" x 8" A1 6 45868 ½" x 10" A1 6 45526 ½"/13mm x¾"/19mm A15 6	45532 3" x 16" A2 6 3.0/1.3 45867 ½" x 8" A1 6 1.4/.64 45868 ½" x 10" A1 6 1.6/.76 45526 ½"/13mm x ¾"/19mm A15 6 1.6/.75	45532 ¾" x 16' A2 6 3.0/1.3 RW316(RY316) 45867 ½" x 8' A1 6 1.4/.64 RY28(RY8)(RW8) 45868 ½" x 10' A1 6 1.6/.76 RY210(RY10)(RW10) 45526 ½"/13mm x ¾"/19mm A15 6 1.6/.75 RY10MEX (RY10MEX)

Please see pages 7—10 for blade styles.

Order by catalog number and/or replacement number shown in bold.

Mezurall



Yellow clad. Chrome plated cases with belt clip. Manual operation. Available in widths of $\frac{3}{4}$ "/19mm and up to 16'/5m in length.

Cat. No.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. Ib/kg	Repl. Blade No.	N/S No.
W926	45871	½" x 6'	A 1	6	1.0/.49	RW6 (RY6)	45010
W928	45872	½" × 8'	Α1	6	1.2/.56	RY28 (RY8) (RW8)	45016
W9210	45873	½" × 10'	A1	6	1.5/.71	RY210 (RY10) (RW10)	45020
W9212	45874	½" x 12'	A1	6	1.6/.75	RW12(RY12)(RY212)	45038
W9310	45877	∄" x 10'	A2	6	2.0/.94	RW310 (RY310)	45216
W9312	45878	3" x 12"	A2	6	2.2/1.0	RW312 (RY312)	45220
W9316	45870	∄" × 16'	A2	6	_	RW316 (RY316)	45233
W9210D	45881	½" × 10'	A4	6	1.5/.71	RW10D (RY10D)	45021
W9312D	45879	3" x 12"	A4	6	2.2/1.0	RW312D (RY312D)	45935
W9210M	45555	⅓" x 3m	A9	6	1.5/.68	_	
W926ME	45875	½"/13mm x 6'/2m	A11	6	1.1/.50	RW6ME(RY6ME)	45011
W9210ME		½"/13mm x 10'/3m	A11	6	1.5/.71	RW10ME(RY10ME)(RY23ME)	45024

Please see pages 7—10 for blade styles.

Order by catalog number and/or replacement number shown in bold.

Mezurall - chrome clad

CHROM

Chrome plated case. Manual operation. Choice of industrial uses because it is tough, accurate and has a hard chrome plated blade. Available in widths of $\frac{1}{2}$ "/13mm and $\frac{3}{4}$ "/19mm and up to 12'/4m in length.

Cat.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/g	Repl. Blade No.	N/S No.
C9212X	45557	½" x 12'	Α7	6		RC212X	45036
C926	45367	}" × 6'	A8	6	.89/.40	RC6	45006
C928	45372	½" x 8'	A8	6	1.0/.47	RC8	45014
C9210	45548	½ " x 10'	A8	6	1.3/.63	RC 10	45019
C9212	45556	½" x 12'	A8	6	1.4/.68	RC 12	45035
C9312	45563	₹" x 12'	A2	6	2.1/.96	RC312	45218
C9210M	45549	½" x 3m	Α9	6	1.6/.74	_	
C926ME	45368	½"/13mm x 6'/2m	A11	6	.90/.41	_	
C9210ME	45550	½"/13mm x 10'/3m	A11	6	1.3/.61	_	

The following tapes are available for export.

C2CME	-	½"/13mm x 6'/2m	A28	6	1.6/.72	RC2CME	_
C3CME	_	½"/13mm x 10'/3m	A28	6	1.8/.82	RC3CME	
C2M	_	13mm x 2m	A29	6	1.6/.72	RC2M	
СЗМ	_	13mm x 3m	A29	6	1.8/.82	RC3CM	

Please see pages 7-10 for blade styles.

Mezurlok (export only)

Yellow clad. ½"/13mm and ¾"/19mm wide. Positive lock. Removable belt clip.



_			Diada	Chri	Pack Wt.	Repl. Blade	N/S
Cat.	N/S	•	Blade	Std.			
No.	No.	"/mm x '/m	Style	Pack	lb/kg	No.	No.
W928	_	½ " x 8'	A1	6	1.3/.59	RY8 (RW8)	
W9210	_	½ " x 10"	A1	6	1.4/.64	RY10	
W9212	_	½ " x 12"	A1	6	2.1/.95	RY12	
W9312	_	₹"× 12"	A1	6	2.1/.95	RY312	
W9210D	_	½" x 10'	A4	6	1.4/.64	RW10D	
Y922CME	_	½"/13mm x 6'/2m	A28	6	1.1/.50	RY22CME	
Y923CME	_	½ "/ 13mm x 10'/3m	A28	6	1.4/.64	RY23CME	_
Y933CME	_	₹"/19mm x 10'/3m	A28	6	2.1/.95	RY33CME	
Y935CME	_	₹"/19mm x 16'/5m	A28	6	2.9/1.3	RY35CME	
Y922CM	_	13mm x 2m	A29	6	1.1/.50	RY22CM	
Y923CM	_	13mm x 3m	A29	6	1.4/.64	RY23CM	
Y933CM	_	19mm x 3m	A29	6	2.0/.91	RY33CM	
Y935CM	_	19mm x 5m	A29	6	2.9/1.3	RY35CM	

Please see pages 7—10 for blade styles.

Order by catalog number and/or replacement number shown in bold.

Springs and belt clips for tape rules

	Cat.	N/S
Description	No.	No.
Spring		
S4 for W926, W928 Mezurall	427331	45567
S5 for W9210, S912 Mezurall	427333	45568
S6 for C9310, C9312, W9312 Mezurall	427335	45569
LP3 for W7212 Lokmatic	427605	45574
LP4 for W7312 Lokmatic	427607	45575
LP5 for W7316 Lokmatic	427609	45576
LP7 for Y12-12 Ultralok	427613	45577
LP8 for Y16, W7316, W9316	427615	45578
LP9 for Y25	427617	45579
Belt clips		
BC3 for W926, W928, W9210, W9312	427277	45581
BC4 for W728, W7210, W7316	427279	45582
BC6 for Y12, Y16, Y25, Y210, Y212, Ultralok.	427257	45583

Unilok



Yellow clad. Lightweight high strength matt-black finished case. Positive toggle lock holds blade securely at any length for accurate measurement. Built-in shock absorber cushions blade return. Removable belt clip. Available in widths of $\frac{1}{2}$ "/13mm, $\frac{3}{4}$ "/19mm and 1"/25mm and up to 25'/8m in length. Easy to read black numerals on yellow background.

Cat.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
8010	45700	½" x 10'	A1	6	1.7/.77	_	
8012	45701	½" x 12'	A1	6	1.8/.82		
8312	45674	₹" x 12'	A2	6	2.3/1.0	_	
8316	45675	₹" x 16'	A2	6	3.1/1.4		
8325	45676	₹" x 25'	A2	6	4.6/2.0		
8425	45743	1" x 25'	A10	6	5.9/2.6		

Please see pages 7—10 for blade styles.

Unilok (export only)



N/S No.	File File //mm x "/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
	½"/13mm x 6'/2m	A28	6	1.4/.64	RY22CME	
_	½"/13mm x 10'/3m	A28	6	1.7/.81	RY23CME	
	½"/13mm x 13'/4m	A28	6	1.3/.63	RY24CME	
_	₹"/19mm x 13'/4m	A28	6	2.3/1.0	RY34CME	
_	3"/19mm x 16'/5m	A28	6	3.0/1.4	RY35CME	
_	¾"/19mm x 16'/5m	A28	6	3.0/1.4	RY35CME	
_	3"/19mm x 26'/8m	A28	6	4.6/2.1	RY38CME	
_	13mm x 2m	A29	6	1.3/.60	RY22CM	
_	13mm x 2m	A29	6	1.7/.80	RY23CM	
_	13mm x 4m	A29	6	1.2/.59	RY24CM	
_	19mm x 4m	A29	6	2.3/1.0	RY34CM	
_	19mm x 5m	A29	6	3.0/1.3	RY35CM	
_	19mm x 8m	A29	6	4.4/2.0	RY38CM	
	½" x 12'	A1	6	1.5/.70	_	
_	₹" x 12'	A2	6	2.3/1.0		
_	¾ ″ x 16′	A2	6	3.0/1.4		
_	¾ " x 25"	A2	6	4.6/2.1		
	•	No. "/mm x "/m - \frac{1}{2}"/13mm x 6'/2m - \frac{1}{2}"/13mm x 10'/3m - \frac{1}{2}"/13mm x 13'/4m - \frac{1}{4}"/19mm x 13'/4m - \frac{1}{4}"/19mm x 16'/5m - \frac{1}{4}"/19mm x 16'/5m - \frac{1}{4}"/19mm x 26'/8m - 13mm x 2m - 13mm x 2m - 13mm x 4m - 19mm x 4m - 19mm x 5m - 19mm x 8m - \frac{1}{2}" x 12' - \frac{1}{4}" x 16'	No. "/mm x "/m Style - \frac{1}{2}"/13mm x 6'/2m A28 - \frac{1}{2}"/13mm x 10'/3m A28 - \frac{1}{2}"/13mm x 13'/4m A28 - \frac{1}{2}"/19mm x 13'/4m A28 - \frac{1}{2}"/19mm x 16'/5m A28 - \frac{1}{2}"/19mm x 16'/5m A28 - \frac{1}{2}"/19mm x 26'/8m A28 - \frac{1}{2}"/19mm x 20'/8m A29 - 13mm x 2m A29 - 13mm x 2m A29 - 13mm x 4m A29 - 19mm x 4m A29 - 19mm x 5m A29 - 19mm x 8m A29 - 19mm x 8m A29 - \frac{1}{2}" x 12' A1 - \frac{1}{2}" x 12' A2 - \frac{1}{2}" x 16' A28	No. "/mm x "/m Style Pack — ½"/13mm x 6'/2m A28 6 — ½"/13mm x 10'/3m A28 6 — ½"/13mm x 13'/4m A28 6 — ¾"/19mm x 13'/4m A28 6 — ¾"/19mm x 16'/5m A28 6 — ¾"/19mm x 16'/5m A28 6 — ¾"/19mm x 26'/8m A28 6 — 13mm x 2m A29 6 — 13mm x 2m A29 6 — 13mm x 4m A29 6 — 19mm x 4m A29 6 — 19mm x 5m A29 6 — 19mm x 8m A29 6 — ½" x 12' A1 6 — ¾" x 12' A2 6	N/S No. "/mm x "/m Style Pack lb/kg - ½ "/13mm x 6'/2m A28 6 1.4/.64 - ½ "/13mm x 10'/3m A28 6 1.7/.81 - ½ "/13mm x 13'/4m A28 6 1.3/.63 - ¾ "/19mm x 13'/4m A28 6 2.3/1.0 - ¾ "/19mm x 16'/5m A28 6 3.0/1.4 - ¾ "/19mm x 16'/5m A28 6 3.0/1.4 - ¾ "/19mm x 26'/8m A28 6 4.6/2.1 - 13mm x 2m A29 6 1.3/.60 - 13mm x 2m A29 6 1.7/.80 - 13mm x 4m A29 6 1.2/.59 - 19mm x 4m A29 6 2.3/1.0 - 19mm x 5m A29 6 3.0/1.3 - 19mm x 8m A29 6 3.0/1.3 - 19mm x 8m A29 6 4.4/2.0 - ½ " x 12' A1 6 1.5/.70 - ¾ " x 12' A2 6 2.3/1.0	N/S Image: Control of the last

Please see pages 7—10 for blade styles.

Economy



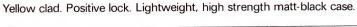
Yellow clad. Lightweight—6'/2m model is 2 oz. High strength matt-black finished case.

Cat. No.	N/S No.	Ž⊞ιΙΙ [←L→] "/mm x '/m	Blade Style		Pack Wt. lb/kg	Repl. Blade No.	N/S No.
Y826 (W826)	45794	½" x 6'	A1	6	.96/.43	RW6 (RY6)	45010
Y8210 (W8210)	45796	½" x 10'	A1	6	1.4/.65	RY210 (RY10) (RW10)	45023
Y8212 (W8212)	45798	½ " x 12'	A1	6	1.5/.70	RW12 (RY12) (RY212)	45038
Y822ME (W826ME)	45795	½"/13mm x 6'/2m	A11	6	1.0/.45	RW6ME (RY6ME)	45011
Y823ME (W8210ME)	45797	½"/13mm x 10'/3m	A11	6	1.4/.65	RW10ME (RY10ME) (RY23ME)	45024

Please see pages 7-10 for blade styles.

Order by catalog number and/or replacement number shown in bold.

Universal (export only)





Cat. No.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
Y526	_	1" x 6'	A1	6	.97/.44	RY6	_
Y5210		1" x 10"	A1	6	1.3/.59	RY10	_
Y5212		⅓" x 12'	A1	6	1.6/.72	RY12	
Y522CME	_	}"/13mm x 6'/2m	A28	6	1.0/.45	RY22CME	
Y523CME	_	}"/13mm x 10'/3m	A28	6	1.3/.59	RY23CME	
Y522CM	_	13mm x 2m	A29	6	.95/.43	RY22CM	
Y523CM	_	13mm x 3m	A29	6	1.3/.59	RY23CM	

Please see pages 7-10 for blade styles.

Pee Wee



Yellow clad. High strength matt-black case. Manual operation. Pocket size ideal for office or home. $\frac{1}{4}$ "/6mm wide blade is flexible; bold black and red graduations on yellow background help to give quick accurate readings.

Cat.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
W616	45857	1" x 6'	A16	6	.52/.24	RW616	45861
W618	45859	1" x 8'	A16	6	.61/.28	RW618	45862
W6110	45854	1" x 10'	A16	6	.72/.33	RW6110	45863
W616ME	45858	1"/6mm x 6'/2m	A17	6	.55/.25		

The following tapes are available for export.

Y616	_	1 " × 6"	A16	6	.95/.43	_	
Y6110	_	1" × 10'	A16	6	1.0/.45		
Y612ME		1"/6mm x 6'/2m	A17	6	.95/.43		
Y613ME		1"/6mm x 10'/3m	A17	6	1.0/.45		
Y612M		6mm x 2m	A13	6	.95/.43		_
Y613M	_	6mm x 3m	A13	6	1.0/.45		

Please see pages 7—10 for blade styles.

Specialty tapes





Yellow clad. Polished chrome case. Spring action returns blade to case. Convenient for office, briefcase and pocket. Easy to read bold black and red print on white background.

Cat.	N/S No.	*	Blade Style	Std. Pack	Pack Wt.	Repl. Blade No.	N/S No.
No. W606	45855	1" × 6'	A16	6	.65/.29	RW616	45861
W608	45856	₹" x 8'	A16	6	.74/.34	RW618	45862
W606MF	45852	1"/6mm x 6'/2m	A17	6	.53/.24		

Please see pages 7—10 for blade styles.

Executive® Diameter



Yellow clad. Polished chrome case. Spring action returns blade to case. Designed for measuring diameters of pipes, cables, tires or any circular objetcs. Zero falls in the same place on each side oh the blade; conversion from diameter to circumference is made simply by turning the blade. Model W606P shows diameter inches to \$\frac{1}{64}\$ths, W606PD to 100ths, W606PM to millimeters.

Cat.	N/S No.	"/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
W606P	45850	1" x 6'	A 18	6	.52/.24	_	
W606PD	45851	1" x 6'	A19	6	.53/.24	RW06PD	45860
W606PM	45853	6mm x 2m	A20	6	.54/.24		

Please see pages 7-10 for blade styles.





Easy to read nickel plated blade and chrome plated steel case assure you of a long lasting measuring tool. End hook is stationary.

Cat. No.	N/S No.	y limit lim	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
688	45351	§" x 8'	A21	6	2.0/.91		_
6810	45503	§" x 10'	A21	6	.35/.16		

Please see pages 7—10 for blade styles.



Nickel clad. Chrome plated case. End hook is self-adjusting.

Cat. No.	N/S No.	"/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
1688	45461	₹" x 8'	A21	6	1.1/.53		_

Please see pages 7 - 10 for blade style.

Nubian steel pocket tape



Nubian clad. Easy to carry steel pocket tape with chrome-plated case designed for long wear. Raised steel markings contrast with black background for legibility. Blades hold fast at any length with push-button spring return.

Cat. No.	N/S No.	"/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
146P	45121	₹" x 6'	A24	1	1.0/.47	0146P	45122
146PD	45123	1″ x 6′	A25	1	1.0/.49	0146PD	45124
146ME	45119	‡"/6mm x 6'/2m	A27	1	1.0/.49		

Please see pages 7 - 10 for blade styles.

Architect's pocket scale



Yellow clad. Manual or automatic return operation available in these special purpose tape rules. The $\frac{1}{4}''/6\text{mm}$ white steel blade has jet black markings.

Cat. No.	N/S No.	″/mm x ′/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
W393 (Manual)	45848	∄" × 5′	A23	1	1.0/.49	-	
W605A (Automatic)	45849	∄" × 5'	A23	6	.51/.23	-	-

Please see pages 7 – 10 for blade style.

M.D. (medical) tape



Metric and English markings show clearly on this M.D. tape rule.

Cat. No.	N/S No.	″/mm x ′/m	Std. Pack	Pack Wt. lb/kg	Blade Style
PW156ME	45864	¼"/6mm x 6'/2m	6	.99/.45	A17

Please see pages 7 – 10 for blade style.

Woven pocket tapes

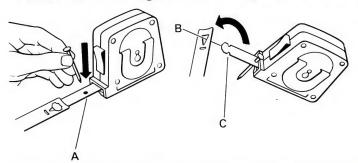


Durable dacron blade. Chrome-plated case designed for long wear.

Cat. No.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
3176ME	45478	1"/6mm x 6'/2m	A14	6	.99/.45	_	_

Please see pages 7 – 10 for blade style.

How to change short tape blades



- 1. Pull old blade out past end until about 2 inches of bluish metal spring is exposed. Put a nail in round hole (A) in spring to hold it.
- 2. Note how old blade is attached, then remove it.
- 3. New blade is reverse wound, ready to attach to spring. With blade graduations up, turn spring sideways and insert from bottom into slot (B) in new blade. Twist spring and pull back until notches (C) lock at rear of slot (B).
- 4. Remove nail and return blade to case.

Short tapes: blade styles A1 – A29

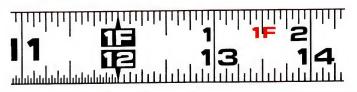
A1 yellow clad



 $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" widths.

Black and red markings one side only. Feet and inches to $\frac{1}{16}$ ths top edge. Consecutive inches to $\frac{1}{12}$ ths bottom edge; first 12 inches to $\frac{1}{12}$ nds. Black color blocks designate feet. 16 inch centers are designated in red.

A2 yellow clad



 $\frac{3}{4}$ " and 1" widths.

Black and red markings one side only. Feet and inches to $\frac{1}{16}$ ths top edge. Consecutive inches to $\frac{1}{12}$ ths bottom edge; first 12 inches to $\frac{1}{12}$ nds. Color blocks designate feet and 16 inch centers.

A3 chrome clad



1" width only.

Black markings one side only. Graduated to $\frac{1}{10}$ ths of inches on both edges with the first 6 inches on lower edge, graduated to $\frac{1}{50}$ ths.

A4 yellow clad



3" width only

Black markings one side only. Graduated feet, $\frac{1}{10}$ ths and $\frac{1}{100}$ ths on top edge; feet, inches and $\frac{1}{16}$ ths on bottom edge. First 12 inches bottom edge to $\frac{1}{17}$ nds.

A5 yellow clad Engineer's



 $\frac{3}{4}$ "/19mm width only.

Black markings one side only. Lower edge graduated feet, $\frac{1}{10}$ ths, and $\frac{1}{100}$ ths on top edge, upper edge graduated in consecutive millimeters.

A6 yellow clad



¾" width only.

Black and red markings one side only. Graduations read right to left and left to right. Both edges graduated feet and inches to $\frac{1}{16}$ ths. Color blocks designate feet and 16 inch centers.

A7 chrome clad



1" width only.

Black markings, one side only. Graduated to $\frac{1}{10}$ ths of inches on both edges with the first 6 inches on lower edge graduated to $\frac{1}{10}$ ths.

A8 chrome clad



1" width only.

Black markings one side only. Graduated feet and $\frac{1}{16}$ ths on top edge; feet and $\frac{1}{16}$ ths on bottom edge. First 12 inches top edge to $\frac{1}{32}$ nds.

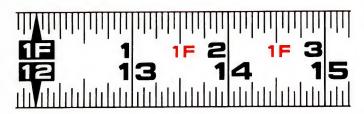
A9 yellow clad and chrome clad



13mm and 19mm width.

Black and red markings on one side only. Both edges graduated to millimeters. Blade reads instantaneously with meter numbering within each decimeter. Every centimeter is numbered consecutively within each meter. Decimeter and meter numbers are red.

A10 yellow clad



1" width only.

Black and red markings one side only. Feet and inches to $\frac{1}{16}$ ths top edge. Consecutive inches to $\frac{1}{16}$ ths bottom edge. Color blocks designate feet and 16 inch centers.

A11 yellow clad and chrome clad



3"/13mm width only.

Black and red markings one side only. Upper edge graduated in feet and inches to $\frac{1}{16}$ ths, first 12 inches to $\frac{1}{32}$ nds. Lower edge graduated in millimeters, numbered centimeters.

A12 yellow clad



¾"/19mm width only.

Black and red markings one side only. Upper edge graduated in feet and inches to $\frac{1}{16}$ ths, first 12 inches to $\frac{1}{12}$ nds. Lower edge graduated in millimeters, numbered centimeters.

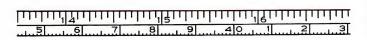
A13 yellow clad



6mm width only.

Black and red markings on one side only. Graduated to millimeters on lower edge, numbered in centimeters. Red markings every 10 cm.

A14 woven



1"/6mm width only.

Black markings on one side only. Graduated feet and inches to $\frac{1}{16}$ ths on top edge; lower edge graduated in millimeters, numbered centimeters.



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 $\frac{1}{2}$ "/13mm width only.

Black markings one side only. Lower edge graduated in $\frac{1}{50}$ ths (.02) of a foot for the first foot and $\frac{1}{10}$ ths of inches the balance (120 inches). Top edge graduated in consecutive millimeters.

A16 yellow clad



¼" width only.

Black and red markings one side only. Consecutive inches to 1sths bottom edge; first 12 inches to 1sthat 16 inch centers designated by diamond. Every 12th inch in red.

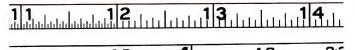
A17 yellow clad

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5678940123.

1"/6mm width only.

Black and red markings one side only. Upper edge graduated in inches to $\frac{1}{16}$ ths; first 12 inches to $\frac{1}{32}$ nds. Lower edge graduated in millimeters, numbered in centimeters.

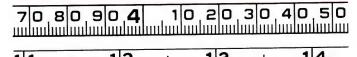
A18 yellow clad



¼" width only.

Marked on both sides. Consecutive inches to $\frac{1}{10}$ ths, first 12 inches to $\frac{1}{32}$ nds on one side; diameter inches to $\frac{1}{64}$ ths other side. Blank space ahead of zero.

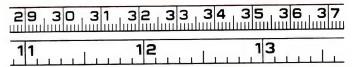
A19 yellow clad



1" width only.

Marked on both sides. Consecutive inches to $\frac{1}{16}$ ths, first 12 inches to $\frac{1}{32}$ nds on one side; diameter inches to $\frac{1}{160}$ ths other side. Blank space ahead of zero.

A20 yellow clad



6mm width only.

Marked on both sides. Consecutive centimeters to millimeters one side; diameter to millimeters other side, numbered in centimeters.

A21 chrome clad and nickel clad



1 and 8 widths.

Black markings one side only. Graduated consecutive inches to $\frac{1}{16}$ ths, first 12 inches of top edge to $\frac{1}{32}$ nds. 16 inch centers designated.

A22 chrome clad



 $\frac{1}{2}$ "/13mm width only.

Black markings one side only. Graduated in consecutive inches to $\frac{1}{16}$ ths, first 12 inches to $\frac{1}{2}$ nds on lower edge. Top edge graduated in millimeters, numbered in centimeters.

A23 yellow clad

8 2 8 4 8 6 8 8 9 0 9 2 9 4 9 6 9 8 1 0 0 1 0 4 1 0 8

4|5 4|6 4|7 4|8 4|9 5|0 5|1 5|2 5|3 5|4 5|5 5|6 5|7 5|8 5|9

1" width only.

Black markings on both sides. One side marked $\frac{1}{4}$ inch scale (1 to 240), other side has $\frac{1}{8}$ th inch scale (1 to 480).

A24 nubian

 $f{1}$

INCHES OF DIA. BY 64 THS.

1" width only.

Markings on both sides. One side graduated consecutive inches to $\frac{1}{18}$ ths; other side diameter inches in $\frac{1}{64}$ ths. Blank space ahead of zero

A25 nubian

DIA. INCHES TO 100THS. 10 20 30 40 50 60

1" width only.

Markings on both sides. One side graduated consecutive inches to $\frac{1}{16}$ ths; other side diameter inches in 100ths. Blank space ahead of zero.

A26 nubian

DIA. CM TO MM1

6mm width only.

Markings on both sides. One side graduated consecutive centimeters to millimeters; other side diameter to millimeters.

A27 nubian

1 2 3 METER 4 5 METER 6 7 8 9

1"/6mm width only.

Marked on both sides. Millimeter one side; consecutive inches to $\frac{1}{16}$ ths other side. Blank space ahead of zero.

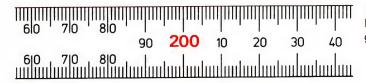
A28 yellow clad and chrome clad



½"/13mm, ¾"/19mm and 1"/27mm widths.

Markings one side only. System International metric one edge graduated to millimeters, numbered centimeters. English other edge to $\frac{1}{18}$ ths, first foot to $\frac{1}{32}$ nds, continuous inches. Feet and 10 cm marked in red.

A29 yellow clad



13mm and 19mm widths.

Markings on one side only. System International metric one edge graduated to millimeters, numbered centimeters.

Long tapes

General information

Lufkin tapes and rules are manufactured to comply with U.S. Government Specifications Boards requirements for accuracy. Our bench mark standards are certified by the National Bureau of Standards.

Standard temperature for steel tapes is 20°C (68°F); Coefficient of expansion for steel tapes is 0.0000116 per degree Celsius/ 0.0000645 per degree Fahrenheit.

Standard tension for most long steel tapes, when fully supported throughout their entire length, is 50N (10 lbs. for English only

Surveyor's tapes of heavy gauge steel have a standard tension of 75N (10 lbs. for English up to 100 ft. long and 20 lbs. for English over 100 ft. long).

All Lufkin steel tapes have a clear abrasive resistant protection to provide wear and corrosion resistance.

Long tapes

Prefixes

Chrome clad Y— Yellow clad H-Hook ring at zero Replacement blade R-Chrome clad derrick CD-

Suffixes

Metric graduations M-

Metric graduations/millimeter numbering MM-

Metric/English graduations MME-Metric/English graduations ME-Feet/decimal feet graduations D-DMM-Feet/decimal feet/Metric graduations B-Feet/decimal feet with add-on leader

Metric with add-on leader MB-Metric graduations/centimeter numbering CM-

Metric/English graduations CME-

Anchor



Chrome clad. Professional tradesman's quality tape, housed in a rugged, vinyl-covered steel case with large easy action plated metal winding drum and nylon friction washers. Nylon roller guides the tape smoothly in and out of the case. Available in \(\frac{3}{8} \) /10mm and up to 164'/50m in length.

Cat.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
C213	45140	₹" x 50"	В1	1	1.0/.48	OC213	45144
C216	45160	3 " x 100"	B1	1	1.7/.81	OC216	45164
C217	45665	₹" x 150"	В1	1	2.4/1.1	OC217	45741
C216-1-BLK	45167	₹"× 100"	В2	1	1.7/1.8	OC216 + BLK	45168
C213C	45151	₹" x 600"	В3	1	1.0/.47	OC213C	45152
C213CX	45153	3 " x 600"	В4	1	1.0/.49	OC213CX	45154
C213D	45155	∄" x 50'	B5	1	1.0/.49	OC213D	45156
C216D	45169	₹"× 100"	B5	1	1.7/.80	OC216D	45170
HC216D	45173	₹"× 100"	B5	1	1.7/.80	_	_
C216DM	45162	₹" / 10mm x 100′/30m	В6	1	1.8/.82	-	_

Please see pages 15-17 for blade styles.

Leader[®]



Chrome clad. Sturdy, rust-resistant steel case has a tough, black vinyl cover. Nylon rollers guide the tape smoothly in and out of the case. Jetblack markings are bonded to the steel and recessed below the hard chrome surface, giving this tape line the best finish for resistance to wear, rust and heat. Fitted with a folding end hook ring.

Cat.	N/S No. "/mm x '/m	Blade Style	Std. Pack		Repl. Blade No.	N/S No.
HC253*	45201 ¾" × 50'	B1	1	.86/.39	OHC253	45202
HC256*	45206 ¾" × 100'	B1	1	1.6/.72	OHC256	45207

The following tapes are available for export.

HC215MM -	10mm x 15m	B17	1	.88/.40	RHC215MM	_
HC220MM -	10mm x 20m	B17	1	1.2/.54	RHC220MM	
HC230MM -	10mm x 30m	B17	1	1.5/.68	RHC230MM	
HC215MME -	₹"/10mm x 50'/15m	B18	1	.88/.40	RHC215MME	_
HC220MME -	₹"/10mm x 66'/20m	B18	1	1.2/.54	RHC220MME	
HC230MME -	3"/10mm x 100'/30m	B18	1	1.5/.68	RHC230MME	_
HC253* -	¾" × 50'	B1	1	.86/.39	RHC253	
HC256* -	3" x 100'	B1	1	1.6/.72	RHC256	_

Please see pages 15-17 for blade styles. * Available in master carton of 24.

Challenge



Nubian Stainless steel (S263). Case, drum assembly and etched tape line are designed to perform for years. Tape line is housed in a rugged, vinyl-covered steel case with a large, easy action, plated metal winding drum and nylon friction washers. Nylon rollers guide the tape smoothly in and out of the case. "T" in the suffix of the number denotes a tree tape which is fitted with a special claw hook designed for anchoring in tree bark when measuring diameter. "P" in suffix denotes diameter.

Cat. No.	N/S No.	" x '	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
263P	45209	₹" × 50'	B11	1	.87/.39	0263P	45210
263TP	45211	₹" × 50'	B13	1	.91/.41	_	
S263	45212	₹" × 50'	B10	1	_	_	

Please see pages 15 - 17 for blade styles.

Royal Ni-Clad



Nickel plated long steel tape housed in a rugged, vinyl-covered steel case with large easy action plated metal winding drum and nylon friction washers. Nylon rollers guide the tape smoothly in and out of the case. "H" prefix denotes product blade is fitted with a folding hook ring.

Cat.	N/S No.	*/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
H433	45264	₹" x 50'	B1	1	-	OH433	45266
H436	45270	₹" × 100'	B1	1	10.6/4.8	OH436	45272

Please see pages 15 - 17 for blade styles.

Speedwinder[™]



The new Lufkin Speedwinder tape features a revolutionary new design concept that enables the user to extend, measure and rewind in less time than conventional long steel tape. Yellow clad tape line with easy-to-read bold black markings, protected by an abrasive resistant coating, stands up against rugged measuring. Impact-resistant, attractive, self-standing case.

Cat. No.	N/S No.	× x ′	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
HYT50	45815	₹" × 50'	B1	6	5.4/2.4	RHYT50	45817
HYT100	45816	3" × 100'	B1	6	8.2/3.7	RHYT100	45818

Please see pages 15 – 17 for blade style.

Banner



Yellow clad. Professional tradesman's quality tape is .008"/0.2mm thick and housed in a rugged, vinyl-covered steel case with large easy action plated metal winding drum and nylon friction washers. Nylon rollers guide the tape smoothly in and out of the case. H prefix denotes product blade is fitted with a folding hook ring. Available in $\frac{2}{3}$ "/10mm width and up to 164'/50m in length. Bold graduations with black and red numbers make for accurate measuring.

Cat. No.	N/S No.	<u>A</u>	Blade Style		Pack Wt. lb/kg	Repl. Blade No.	N/S No.
HW223	45886	∄" x 50'	В1	6	6.5/2.9	OHW223	45889
HW223D	45890	∄" x 50'	B5	1	1.0/.48	OHW223D	45891
HW223ME	45888	3"/10mm x 50'/15m	В9	1	1.0/.48		_
HW226	45894	∄" x 100'	В1	6	10.2/4.74	OHW226	45895
HW226D	45896	∄" x 100'	В5	1	1.7/.79	OHW226D	45891
HW226ME	45898	3"/10mm x 100'/30m	В9	1	1.7/.79		
HW227ME	45903	3"/10mm x 164'/50m	В9	1	2.5/1.1		

The following are available for export.

HW223	_	∄" x 50'	B1	6	6.5/2.9	RHW223	
HW223D	_	₹" x 50'	В5	1	1.0/.48	RHW223D	
HW226	_	₹" x 100'	В1	6	10.2/4.74	RHW226	
HW226D	_	₹" x 100'	В5	1	1.7/.79	RHW226D	
HY2 15CM	_	10mm x 15m	B20	1	1.1/.50	RHY215CM	
HY220CM	_	10mm x 20m	B20	1	1.2/.54	RHY220CM	
HY230CM	_	10mm x 30m	B20	1	1.6/.72	RHY230CM	_
HY250CM	_	10mm x 50m	B20	1	2.5/1.1	RHY250CM	_
HY215CME	_	3"/10mm x 50'/15m	B19	1	1.1/.50	RHY215CME	
HY220CME	_	3"/10mm x 66'/20m	B19	1	1.2/.54	RHY220CME	_
HY230CME	_	3"/10mm x 100'/30m	B19	1	1.8/.82	RHY230CME	
HY250CME	_	}"/10mm x 164'/50m	B19	1	2.3/1.0	RHY250CME	

Please see pages 15-17 for blade styles.

Home shop



Yellow clad. Vinyl covered steel case. Large easy action plated metal winding drum and nylon friction washers. Fitted with a folding hook ring.

Cat.	N/S No.	"/mm x '/m		Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
HY50	45882	∄" x 50' E	31	6	4.2/1.9	OHW50	45883
HY1 00	45884	3/ × 100′ E	31	6	7.1/3.2	OHW100	45885

Please see pages 15-17 for blade style.

Universal lightweight



Yellow clad. High impact polystyrene case. Easy wind nylon drum. Hook ring is retained neatly in the contoured mouth of the case. Lightweight 0.005"/0.13mm thick steel with easy-to-read black and red markings.

Cat. No.	N/S No.	*	Blade Style	Std. Pack	Pack Wt. lb/g	Repl. Blade No.	N/S No.
50	45068	₹" x 50"	В1	6	_	OY50	45071
100	45100	3 " x 100"	В1	6		OY100	45103

Please see pages 15-17 for blade style.

Universal (export only)



Yellow clad. Lightweight 0.005"/0.13mm thick steel with easy-to-read black and red markings on yellow background protected by an abrasive resistant coating. The high impact polystyrene case and nylon winding drum provide a smooth winding action. Hook ring is retained neatly in the contoured mouth of the case.

Cat. No.	N/S No.	Zeria Eria (←L→) "/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
HY50	_	₹" × 50'	B1	5	2.8/1.3	RHY50	_
HY100	_	¾" x 100′	B1	5	4.7/2.1	RHY100	_
HY15CME	_	₹"/10mm x 50'/15m	B19	5	2.8/1.3	RHY15CME	_
HY20CME	_	3"/10mm x 66'/20m	B19	5	3.3/1.5	RHY20CME	_
HY30CME	_	₹"/10mm x 100'/30m	B19	5	4.7/2.1	RHY30CME	_
HY15CM	_	10mm x 15m	B19	5	2.8/1.3	RHY15CM	_
HY20CM	_	10mm x 20m	B20	5	3.3/1.5	RHY20CM	_
HY30CM	_	10mm x 30m	B20	5	4.7/2.1	RHY30CM	_

Please see pages 15 – 17 for blade styles.

Artisan diameter and tree tapes



Chrome clad and nubian. Tapeline is 0.2mm thick, housed in a rugged, vinyl-covered steel case with a large easy action, plated metal winding drum and nylon friction washers. Nylon rollers guide the tape smoothly in and out of the case.

"T" in the suffix of the number denotes a tree tape which is fitted with a special claw hook designed for anchoring in tree bark. "P" in number suffix denotes diameter.

Cat. No.	N/S No.	*	Blade* Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
120TP	45110	₹" × 20'	B13	1	.56/.25	0120TP	45111
C120TP	45112	¾" × 20'	B13	1	.62/.28	OC120TP	45113
112P	45104	3" × 144"	B14	1	.52/.23	0112P	45105
120P	45108	3" × 240"	B14	1	.56/.25	0120P	45109

The following tapes are available for export.

-							
C110TPM	_	10mm x 10m	B21	1	-	RC110TPM	
C106TPM		10mm x 6m	B21	1	.50/.23	RC106TPM	_
C106PM	_	10mm x 6m	B21	1	.50/.23	RC106PM	_

Please see pages 15 – 17 for blade styles.

Millmen's nubian



Nubian. Rugged, vinyl-covered steel case. One man can measure up to 240" or 300" with this tape especially designed for the mill or warehouse. Outstanding readability of raised marking on etched background. Specially designed U-shape hook fits over edge of sheet or tube for one man measurements.

Cat.	N/S No.	"/mm x '/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
120CH	45106	3" × 240"	B13	1	.56/.25	0120CH	45107
125CH	45114	3" × 300"	B13	1	.59/.27	0125CH	45115

Pole tape



Used primarily by utilities, the pole tape is furnished only without a case. The extra heavy line has raised bright steel markings on a black, etched background. A single measuring gives both circumference and diameter by reading both sides of the tape.

Cat. No.	N/S No.	″/mm x ′/m	Blade Style	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
1P	45000	1" × 6'	B14	1	.20/.09	-	_

Please see pages 15 - 17 for blade styles.

Please see pages 15 - 17 for blade styles.

Long steel tapes: blade styles B1-B14 B1 chrome clad, yellow clad and nickel clad ¾" width only. Black and red markings one side only. Graduated feet and inches to 18ths with instantaneous readings. 16 inch centers are indicated by a diamond. B2 chrome clad र्भ" width only. Black markings one side only. Graduated feet and inches to $\frac{1}{16}$ ths with instantaneous reading. 16 inch centers are indicated by a diamond. **B3** chrome clad ¾" width only. Black markings one side only. Graduated consecutive inches to **B4** chrome clad 3" width only. Black markings one side only. Graduated consecutive inches to ths. **B5** chrome clad and yellow clad ¾" width only. Black markings one side only. Graduations feet to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths. **B6** chrome clad §"/10mm width only. Black and red markings on both sides. Graduated to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet on one side; other side graduated to millimeters, with instantaneous meter numbers at every 100mm. P.R. APP'D 254 Tc 30 40 50 60 70 80 90 7 2 10 **B7** chrome clad 10mm widths only. 34|0 35|0 36|0 37|0 38|0 39|0 40|0 Black markings one side only. Numbered in meters and millimeters, with instantaneous meter numbers at every 100mm. **B8** chrome clad and nickel clad ¾"/10mm width only. Black markings on both sides. One side graduated feet and inches to 18 ths with instantaneous readings; other side in millimeters with

0 32|0 33|0 34|0 35|0 36|0 37|0 38|0 39|0

instantaneous meter numbers at every 100mm. Both sides have a

blank space between end ring and zero.

B9 yellow clad

.11.15.2.15.3.115.4

.31|0 .32|0 .33|0 .34|0 .35|0 .36|0 .37|0 .38|0 .39|0

हु"/10mm width only.

Black and red markings on both sides. One side graduated feet and inches to \$\frac{1}{8}\$ths with instantaneous reading; other side graduated in consecutive millimeters with instantaneous meter numbers at every 100mm.

B10 nubian

¾" width only

Marked one side only. Graduated feet, inches and 1ths.

B11 nubian

f 1 diameter equivalents of circumference f 2

¾" width only.

Marked on both sides. Graduated feet, inches and aths one side; other side graduated diameter feet and inches.

B12 nubian

1 DIAMETER EQUIVALENTS OF CIRCUMFERENCE 2

₹" width only.

Marked on both sides. Graduated consecutive inches to $\frac{1}{16}$ ths one side; other side to diameter feet and inches.

B13 nubian

1 DIAMETER EQUIVALENTS OF CIRCUMFERENCE 2

¾" width only

Marked on both sides. Graduated $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet; other side diameter feet and $\frac{1}{10}$ ths of inches.

B14 nubian

INCHES OF DIA. BY 64 THS.

1" width only.

Marked on both sides. Graduated to $\frac{1}{16}$ ths of an inch, marked in consecutive inches; other side to diameter inches with an extra diameter inch before zero, marked to $\frac{1}{16}$ 4ths.



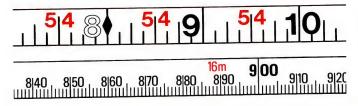




10mm width only.

Black and red markings on one side only. System International metric to millimeters. Numbered in meters and millimeters with instantaneous meter numbers in red at every 100mm.

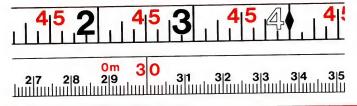
B18 chrome clad



₹"/10mm width only.

Black and red markings on both sides. One side graduated in metric to millimeters; the other side in feet, inches and $\frac{1}{8}$ ths.

B19 yellow clad



용"/10mm width only.

Black and red markings on both sides. One side graduated in feet and inches to 1/2 ths; other side in meters and millimeters numbered in centimeters.

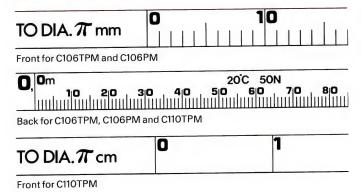
B20 yellow clad



10mm width only.

Black and red markings on side only. System International metric graduated to millimeters, numbered in centimeters.

B21 chrome clad



10mm width only.

Marked both sides. One side meters, decimeters and millimeters; other side reads diameter from circumference. C106PM and C106TPM to 2 meters of diameter in millimeters, C1110TPM to 3 meters of diameter in centimeters.



Rugged, automatic rewind tape used in mills and logging operations. Reel has long durable spring that rewinds tape automatically when spring hook is released. Open side and enclosed working parts prevent dirt and sawdust from clogging reel mechanism. Sharp spike penetrates tree bark easily. Lightweight 0.13m steel tapeline has black and red easy-to-read markings on yellow background. Line graduated feet, inches and 18ths, instantaneous reading, with foot markings and 16 inch centers designated.

Cat. No.	N/S TE	* x ′	Std. Pack	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
LW23	45044	₹" x 50'	1	1.0/.47	OLW23	45045
LH4	45002	Repl. Spike		12/.05		

Measuring wheel



To measure big jobs quickly and accurately, extend the folding handle, set to zero position on starting point, and start walking. Wheel counts as it measures, totals as it counts. Used by paving contractors, traffic engineers, police officials, landscapers, athletic departments. Used for measuring parking lots, laying out traffic lanes, sizing athletic fields, obtaining automobile accident details involving distances, etc. Indoor applications include measuring for floor covering, room sizes, etc. Has these helpful features:

- 1. Total distance shown in feet and inches.
- 2. Knob in center of wheel can be used to set to zero or to preset for desired distances.
- 3. Handle extends and locks at convenient 34" height; folds easily, compactly.
- 4. Clearly audible click every two feet permits running count by operator.
- 5. Loud bell sounds every 100 feet.
- 6. Traction is provided by two Neoprene tires, precisely ground to correct circumference. Wear-resistant to maintain accuracy during long life.
- 7. Fine quality leather case is included for storing wheel. With handle folded, wheel requires only 9" x 8" x 2" space.

Cat.	N/S	lb/kg	Std.
No.	No.		Pack
202	45133	3≩/170	1

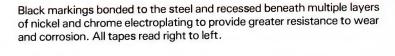
Oil gaging long tapes

Available in two series, chrome clad for dark and heavy oils and nubian for light and clear oils. These tapes are made from heavy gage 13mm x 0.3mm/.500" x .012" steel and have a snapswivel hook on the front end of the tape for attachment of the plumb bob. Reels, two arm for shorter lengths, four arm for 30m/100' lengths are ruggedly constructed with large drums and winding handles for quick and easy rewinding. The winding handle folds over for storage and to lock the tape

position at any desired point.
Plumb bobs are not supplied with tapes. Final part of catalog

Plumb bobs are not supplied with tapes. Final part of catalog number (e.g. /590) denotes which style of bob the tape is made to accept.

Atlas chrome clad





Cat. No.	N/S No.	*	Blade Style	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
C1290}S F/590	45406	<u></u> ₹" x 18'	D1	1.4/.67	OC1290\s F/590	45407
C1290S F/590	45410	½" x 25'	D1	1.8/.82	OC1290S F/590	45411
C1291S F/590	45414	₹" × 33'	D1	1.9/.86	OC1291S F/590	45415
C1293S F/590	45425	½" × 50'	D1	2.2/.99	OC1293S/F/590	45426
C1294S F/590	45435	½" × 66'	D1	2.5/1.1	OC1294S F/590	45436
C1295S F/590	45441	½" × 75'	D1	2.6/1.2	OC1295S F/590	45442
C1296S F/590	45445	½" × 100'	D1	2.5/1.1	OC1296S F/590	45446
C1293S F/587	45416	½" × 50'	D1	2.2/.99	OC1293S F/587	45426
C1294S F/587}	45429	}" × 66'	D1	2.5/1.1	OC1294S F/587	45430
C1293SD F/590	45417	⅓" x 50'	D2	2.2/.99	OC1293SD F/590	45418
C1294SD F/590	45744	½" ×66'	D2	2.5/1.1	OC1294SD F/590	45745
C1293SME F/590	45422		D3	2.1/.98	OC1293SME F/590	45427
C1294SME F/590	45437		D3	2.4/1.1	OC1294SME F/590	45438
C1296SME F/590	45447		D3	3.3/1.5	OC1296SME F/590	45448

The following tapes are available for export.

C1290SF/590	_	½" x 25'	D1	1.8/.82	RC1290S/590	-
C1291SF/590	_	1," × 33′	D1	1.9/.86	RC1291S/590	-
C1293SF/587	_	½" x 50'	D1	2.2/.99	RC1293S/587	_
C1293S F/590	_	}" × 50'	D1	2.2/.99	RC1293S/590	
C1294SF/5871	_	½" × 66'	D1	2.5/1.1	RC1294S/587	
C1294S F/590		½" × 66'	D1	2.5/1.1	RC1294S/590	
C 1296S F/590	_	}" x 100'	D1	2.5/1.1	RC1296S/590	
C2910MME/590GM	_	½"/13mm x 33'/10m	D5	1.8/.82	RC2910MME/590GM	
C2915MME/590GM	_	½"/13mm x 50'/15m	D5	2.2/.99	RC2915MME/590GM	
C2920MME/590GM	_	½"/13mm x 66'/20m	D5	2.6/1.2	RC2920MME/590GM	
C2930MME/590GM	_	½"/13mm x 100'/30m	D5	3.5/1.6	RC2930MME/590GM	-
C2910MM/590GM	_	13mm x 10m	D6	1.8/.82	RC2910MM/590GM	_
C2915MM/590GM	_	13mm x 15m	D6	2.2/.99	RC2915MM/590GM	_
C2920MM/590GM	_	13mm x 20m	D6	2.6/1.2	RC2920MM/590GM	_
C2930MM/590GM	-	13mm x 30m	D6	3.5/1.6	RC2930MM/590GM	
C2910MM/150MM	_	13mm x 10m	D6	1.8/.82	RC2910MM/150MM	
C2915MM/150MM	_	13mm x 15m	D6	2.2/.99	RC2915MM/150MM	_
C2920MM/150MM	_	13mm x 20m	D6	2.6/1.2	RC2920MM/150MM	-
C2930MM/150MM	_	13mm x 30m	D6	3.5/1.6	RC2930MM/150MM	
				~		

Please see pages 20 – 21 for blade styles.

Atlas nubian



The etched background of the Atlas nubian tape lines makes this series the choice for gaging clear oils. The heavy duty line is multiple plated for longer wear. The raised bright steel markings are clearly legible and protected by a flowed-on epoxy coating. All tapes read right to left.

Cat. No.	N/S No.	*	Blade Style	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
1290SF/590	45408	∮" x 25'	D1	1.6/.72	01290SF/590	45409
1291SF/590	45412	∮" x 33'	D1	1.7/.77	01291SF/590	45413
1293SF/590	45420	½" x 50'	D1	2.2/.99	01293SF/590	45421
1294SF/590	45431	½" x 66'	D1	2.4/1.1	01294SF/590	45432
1295SF/590	45439	₃" x 75'	D1		01295SF/590	45540
1293SME MEX F/590	45423	½"/13mm x 50'/15m	D7	2.0/.95	01293SME MEX F/590	45424
1294SME MEX F/590	45433	1"/13mm x 66'/20m	D7	2.4/1.1	01294SME MEX F/590	45434
1296SME F/590	45443	½"/13mm x 100'/30m	D7	2.8/1.3	01296SME F/590	45444

The following tapes are available for export.

1290SF/590	_	₁" x 25'	D1	1.6/.72	R1290S/590	_
1291SF/590	_	1" x 33'	D1	1.7/.77	R1291S/590	_
1293SF/590	_	½" x 50'	D1	2.2/.99	R1293S/590	
1294SF/590	_	½" x 66'	D1	2.4/1.1	R1294S/590	
2915MM/150MM	_	13mm x 15m	D6	1.5/.68	R2915MM/150MM	_
2915MM/590GM	_	13mm x 15m	D6	2.1/.95	R2915MM/590GM	_
2920MM/150MM	_	13mm x 20m	D6	2.3/1.0	R2920MM/150MM	
2920MM/590GM	_	13mm x 20m	D6	2.3/1.0	R2920MM/590GM	_

Note: MEX in suffix stands for Mexican pattern. Please see pages 20—21 for blade styles.

Atlas stainless steel

Cat. No.	N/S No.	" x '	Blade Style	Pack Wt. lb/kg	Repl. Blade No.	N/S No.
S1293F/590	45682	½" x 50'	D1	1.8/.83	OS1293F/590	45428

Please see pages 20-21 for blade styles.

Atlas oil gaging: blade styles D1-D6

D1 chrome clad, stainless steel and nubian

1-7, 1-6, 1-1-5, 1-1-4

1" and 3" widths

Marked on one side only. Graduated instantaneous feet and inches to 1ths

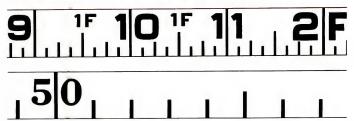
D2 chrome clad and nubian



1" width only.

Marked on one side only. Graduated in feet to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of an inch. Reads left to right.

D3 chrome clad and nubian



 $\frac{1}{2}$ "/13mm width only.

Marked on both sides. Graduated in millimeters on one side; other side instantaneous feet and inches to $\frac{1}{8}$ ths.

D4 chrome clad and nubian



13mm width only.

Marked on one side only. Graduated in millimeters.

D5 chrome clad



Marked on both sides. Graduated feet and inches to $\frac{1}{8}$ ths, numbered right to left on one side; other side graduated meters to millimeters.

1m 4|50 4|40 4|30 4|20 4|10 4|00 3|90 3|80 3|70

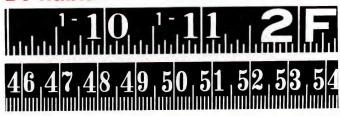
D6 chrome clad

	1m							
4 50	4 40	4 30	4 20	4 10	4 00	3 90	3 80	3 70
4 50	milimi	unlunt	unluul	milim	hinlinil	milani	lunluul	шіш

13mm width only.

Marked on one side only. Graduated meters to millimeters.

D7 nubian



 $\frac{1}{2}$ "/13mm width only.

 $\frac{1}{2}$ "/13mm width only.

Marked on both sides. One side graduated feet and inches to 16ths; other side graduated meters to millimeters.

Plumb bobs

Inage oil gaging plumb bobs



590 (45320). 20-ounce cylindrical shape solid brass bob with tapered point is 1"/25mm in diameter and $6\frac{3}{4}$ "/171mm long overall. Bob face serrated for chalking. For use in heavy oils.

590A (45321). Same as 590 bob, except for removable screw tip point of Ampco metal, which is similar to brass but harder. (Extra tips available — specify TIP. f/590A (45322).

590G (45323). Same as 590 bob, except it is graduated in inches to $\frac{1}{8}$ ths, reading upward (zero at lower end of point). Point is blunt.

590GM (45324). Same as 590G bob, except graduated millimeters with centimeters numbered.

588 (45319). 6-ounce cone-shaped solid brass bob is $1\frac{1}{4}$ "/32mm in diameter and $2\frac{3}{8}$ "/60mm long overall. Suitable for lighter oils, gasoline, etc.

How to measure an inage plumb bob



Tapes cut and fitted with the swivel snap to be used with the 588 and 590 plumb bobs are known as inage gaging tapes. When the plumb bobs are assembled to the swivel snap the zero point is at the bottom of the plumb bob. When being used, the plumb bob and tape are lowered until the bob contacts the bottom of the tank. When the tape is reeled in, the liquid line is read on the tape line itself, thereby showing you the contents of the tank.

Outage oil gaging plumb bobs

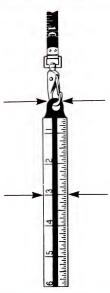


150MM (Export) 150mm long x 22mm square, weighs 540g. Face graduated by millimeters, recessed black strip for easier reading of oil line.

587-½(45318). ¾ "/19mm square, 15-ounce solid brass bob. 6"/152mm long overall. Graduated in inches to \$\frac{1}{16}\$ths top to bottom. Zero falls inside the top of the hook eye. Eye milled from solid brass block (not removable). Reading taken same as on 587.

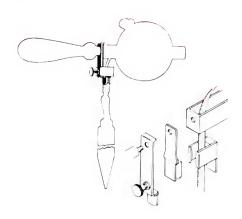
5871

How to measure with an outage plumb bob



Tapes which have the swivel snap fitted so as to accommodate the 587 plumb bob are known as outage tapes. When the 587 plumb bob is assembled to the tape line the zero point is at the intersection of the swivel snap and the plumb bob. When using outage gaging tapes the tape is lowered into the tank until the plumb bob just penetrates the liquid. The tape is then rewound and the liquid level is read right off the plumb bob. The reading on the plumb bob is added to the tape reading, giving the total outage (how much liquid has been removed from the tank).

Tape wipers



The 599 tape wiper is designed primarily to remove oil from gaging tapes as they are reeled in. This helps keep the line in top condition. Tension on the wiping pads is regulated by a thumb screw. Increasing the tension holds the line at any desired point. Pads are replaceable and each unit is furnished with 6 extra pads.

The diagram shows the three parts of the wiper. From left to right: tape wiper bracket and spring plate, both on the handle side of the tape; tape wiper clip on the winding drum side of

- 1. Place clip over line, with lip extending downward.
- 2. Pass wiper bracket up through the clip, with thumb screw at the
- 3. Insert spring plate downward between bracket and tape line, with pad facing line. Attach wiper to reel by screwing wood handle through wiper into reel.

Cat. No.	N/S No.	Description	
599	45329	Wipers	
Pad 599	45330	Pads	

Fiberglass tapes

Linear fiberglass tapes



Durable tape made of 13mm/½" wide fiberglass linear tapes encapsulated in flexible plastic. Designed to resist stretch and extreme weather conditions. Non-conductive material with easy-to-read black and red markings on yellow background. Cases and reels manufactured from lightweight high impact polystyrene with winding drum to provide smooth tape recovery.

Cat.	N/S No.	* ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★	Blade Style	Shelf Pack	Pack Wt. lb/g	Repl. Blade No.	N/S No.
703	45352	½ " x 50'	E1	2	1.0/.45	0703	45353
706	45356	½ " x 100'	E1	2	1.50/.68	0706	45357
703D	45354	½ " x 50'	E2	2	1.0/.45	0703D	45355
706D	45358	½ " x 100"	E2	2	1.50/.68	0706D	45359

For blade styles, see below.

Linear fiberglass reel tapes

Lightweight open reel is easy to handle and rewind, and line does not collect dirt in a case.



					Pack	Repl.	****
Cat.	N/S	▲ ←-L+	Blade			Blade	N/S
No.	No.	" x '	Style	Pack	lb/kg	No.	No.
1703	45462	½ " x 50'	E1	6	0.75/.34	0703	45353
1703D	45463	½" x 50'	E2	6	2.00/.90	0703D	45355
1706	45464	½" x 100'	E1	6	1.25/.56	0706	45357
1706D	45465	½" x 100'	E2	6	2.25/1.02	0706D	45359
1707	45466	½" x 150'	E1	2	2.25/1.02	01707	45467
1707D	45468	½" x 150'	E2	2	2.75/1.24	01707D	45469
HY1715CM	45819	13mm x 15m	E3	6	0.75/.34	RHY1715CM	45822
HY1715CME	45825	½"/13mm x 50'/15m	E3A	6	0.75/.34	RHY1715CME	45828
HY1720CM	45937	13mm x 20m	E3	6	1.19/.54	RHY1720CM	45938
HY1720CME	45846	½"/13mm x 60'/20m	E3A	6	1.19/.54	RHY1720CME	45847
HY1730CM	45820	13mm x 30m	E3	6	1.25/.56	RHY1730CM	45823
HY1730CME	45826	½"/13mm x 100'/30m	ЕЗА	6	1.25/.56	RHY1730CME	45829
HY1750CM	45821	13mm x 50m	E3	2	2.25/1.02	RHY1750CM	45824
HY1750CME	45827	½"/13mm x 164'/50m	E3A	2	2.25/1.02	RHY1750CME	45830
Y1715CM	45909	13mm x 15m	E3	6	0.75/.34	RY1715CM	45924
Y1715CME	45913	½"/13mm x 50'/15m	E3A	6	0.75/.34	RY1715CME	45928
Y1720CM	45910	13mm x 20m	E3	6	1.19/.54	RY1720CM	45925
Y1720CME	45914	½"/13mm x 60'/20m	E3A	6	1.19/.54	RY1720CME	45929
Y1730CM	45911	13mm x 30m	E3	6	1.25/.56	RY1730CM	45926
Y1730CME	45915	½"/13mm x 100'/30m	E3A	6	1.25/.56	RY1730CME	45930
Y1750CM	45912	13mm x 50m	E3	2	2.25/1.02	RY1750CM	45927
Y1750CME	45916	½"/13mm x 164'/50m	ЕЗА	2	2.25/1.02	RY1750CME	45931
For blade style	es see he	elow and page 24.					

For blade styles, see below and page 24

Fiberglass tapes—blade styles E1—E3A

E1 yellow clad

1" width only.

Black and red markings on one side only. Graduated feet and inches to 18ths. Numbered with feet and instantaneous feet markings in red and inches in black.

E2 yellow clad

.2 1F.3 1F.4 1F.5

½" width only.

Black and red markings on one side only. Graduated feet to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths. Numbered with feet in red and $\frac{1}{10}$ ths of feet in black.

E3 yellow clad



13mm wide width only.

Black and red markings on one side only. Graduated millimeters, numbered at each centimeter with red instantaneous meter number.

E3A yellow clad



½"/13mm width only.

Black and red markings on both sides. One side graduated in millimeters, numbered centimeters with red instantaneous meter number; other side in feet, inches, and 10 ths, numbered at each inch with red instantaneous

Hi Line woven tapes



Non-metallic .625"/ 16mm wide Dacron tape for heavy duty use where non-conductivity and resistance to breakage are important, and where steel line accuracy is not required. Large easy-to-read black and red markings on white background. Steel case has extra heavy brown vinyl covering. All parts plated for corrosion resistance. Metal drum is electroplated. Nylon friction washers for smooth winding action. The 404L is graduated in links.

Cat.	N/S No.	*	Blade Style	Pack Wt. lb/kg	Shelf Pack	Repl. Blade No.	N/S No.
403	45242	§" × 50'	E4	1.0/.45	1	0403	45243
406	45254	§" x 100'	E4	1.5/.68	1	0406	45255
H403	45247	§" × 50'	E4	1.0/.45	1	OH403	45248
H406	45259	§" >: 100'	E4	1.5/.68	1	OH406	45260
404L	45252	§" x 100L	E8	1.0/.45	1	0404L	45253
403D	45244	§" × 50'	E5	1.0/.45	1	O403D	45245
406D	45256	§" x 100'	E5	1.5/.68	1	O406D	45257
H403D	45249	§" x 50'	E5	1.0/.45	1	OH403D	45250
H406D	45261	§" x 100'	E5	1.5/.68	1	OH406D	45262
403ME	45246	§"/16mm x 50'/15m	E6	1.0/.45	1	O403ME	45707
406ME	45258	§"/16mm x 100'/30m	E6	1.8/.82	1	O406ME	45708

The following tapes are available for export only.

H403	_	§" x 50'	E4		1	RH403	_
H406	_	§" x 100'	E4		1	RH406	_
H403D	_	§" x 50'	E5		1	RH403D	_
H406D	_	§" x 100'	E5		1	RH406D	_
H1415M	_	§"/16mm x 15m	E7	.88/.40	1	RH1415M	_
H1430M	_	§"/16mm x 30m	E7	1.3/.59	1	RH1430M	_
H1450M	_	§"/16mm x 50m	E7	_	1	RH1450M	_
H1415ME	_	§"/16mm x 50'/15m	E6	.88/.40	1	RH1415ME	_
H1430ME	_	§"/16mm x 100'/30m	E6	1.3/.59	1	RH1430ME	_
H1450ME	_	§"/16mm x 150'/50m	E6	_	1	RH1450ME	_

For blade styles, see below.

150 foot Hi Line

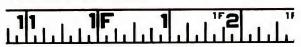


Same quality tape line as other Hi Line tapes shown except extra long 150' length. The disc reel is made of lightweight aluminum for easy handling.

Cat.	N/S No.	× ′ × ′	Blade Style	Wt. each	Repl. Blade No.	N/S No.	Shelf Pack
1407	45353	§" x 150'	E4	3/1.36	01407	45454	1
1407D	45355	§" × 150'	E4	3/1.36	01407D	45456	1

For blade styles, see below.

Woven tapes—E4—E8 E4 white clad

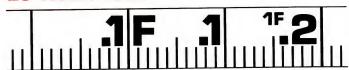


§ " and 76" widths.

Black and red markings on one side only. Graduated feet and inches to

1 "ths, red feet numbers and black inch numbers.

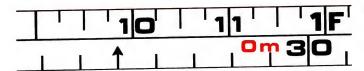
E5 white clad



 $\frac{5}{8}$ " and $\frac{7}{16}$ " / widths.

Black and red markings on one side only. Graduated feet to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths, red feet numbers and black tenths of feet numbers.

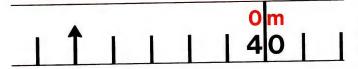
E6 white clad



§"/16mm width only.

Black and red markings on one side only. Graduated meters to centimeters one edge, numbered at each decimeter with red meter number and black centimeter number. Other edge graduated feet and inches to quarters, red feet numbers and black inch numbers.

E7 white clad



16m width only.

Black and red markings on one side only. Graduated meters to centimeters numbered at each decimeter with red meter number and black centimeter number.

E8 white clad

.8 .9 1 LINK

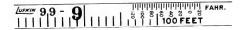
§" width only. Graduated in links.

Engineering and Surveying tapes Steel tape line accuracy

Lufkin steel tapes are made to government standards. Our bench standards for the United States are certified accurate by the United States Department of Commerce, National Bureau of Standards, Washington D.C. Tapes for Canada are made to Canadian government standards.

Temperature standard for steel tapes is 68°F, which equals 20°C. Coefficient of expansion of steel tapes is 0.00000645 per degree F; 0.0000116 per degree C. This amounts to 0.000645 foot or 0.00774 inch per degree F. on a 100-foot tape, and one-half as much on a 50-foot tape.

As a figure that is reasonably accurate and also easy to handle, it is customary on very long runs of pipe to allow to inch per 100 feet for each 10° change in temperature.



The above illustration shows, for a 100-foot tape, the actual length variations of temperature within the range of 20° below to 120° above zero F. The terminal graduation on the lower edge is at 68°, this being standard temperature. Furnished only when specified and at additional cost.

Standard tension for steel tapes 25 to 100 feet long (10 to 30 meters) supported entire length on a horizontal, flat surface, is 10 pounds (4.5 kilograms); for all tapes over 100 feet, 20 pounds. For steel tapes suspended horizontally and supported only at ends, there can be no set or standard tension for accuracy because of weight and other variations.

The following listings are averages of many tests made by the Bureau of Standards of Lufkin steel tapes supported throughout and supported ends only. These averages are taken from the experience of tests and should be used as a working basis only, and not to replace the test of any individual tape.

Width tape inches	Kind of tape	Tension of accuracy thru-out in lbs.	Supported ends only in lbs.
1	Chain Tapes	10	24
1	Engineer's (.012 inch) Tapes	10	18
1	Engineer's Extra Heavy Tapes	10	24
3 & 1 8 & 2	Standard Weight Tapes	10	18

All tape lengths are 100 feet.

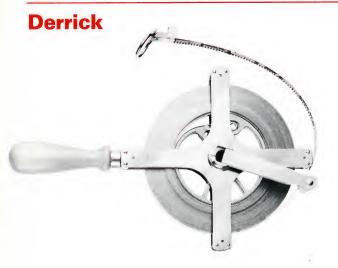
NOTE:

Temperature and tension need to be taken into account only on precise work. We recommend a government test of tapes to be used for such work or for use as master standard. The U.S. Bureau of Standards makes a moderate charge for this test.

Engineer's long tapes

Professional quality tapes designed for site layout and structural work. The .250"/6mm x .012" tapeline minimizes deflection in high winds. This, combined with easy-to-read markings bonded to the steel, recessed below the hard chrome surface and covered by abrasion resistant coating, provides a durable instrument for adverse site and weather conditions. Four arm reels of heavy gage electro-plated steel feature large winding drums and long winding handles which fold for storage and to provide a lock at any desired point.

A temperature correction scale is packaged with each tape or refill. Celsius and millimeter graduations for metric tape (C579M) or Fahrenheit and inch graduations in English tapes (579). Note: See page 28 for details on reels.



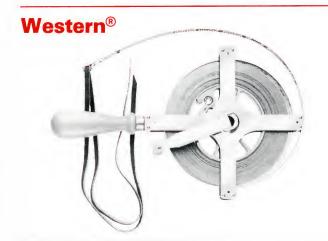
Chrome clad. Fitted with a special hook ring with ribbed face at zero. Extra large winding drum provides rapid line recovery and permits tapeline to be easily detached from reel. A leather thong is provided to use through eye at rear end when tape is removed from reel.

Cat. No.	N/S No.	*	Blade Style	Wt. each	Repl. Blade No.	N/S No.	Repl. Reel
C2276D	45471	∄" x 100′	E9	3.25/1.47	OC2276D	45472	12-150
C2276ME	45473	₹"/6mm x 100'/30m	E10	3.25/1.47	OC2276ME	45474	12-150
C2276M	45746	6mm x 30m	E11	3.25/1.47	OC2276M	45752	12-150

The following tapes are available for export only

C2276D		¼ " × 100′	E9	3.25/1.47	RC2276D	-	-
CD2730MM	_	6mm x 30m	E13	-	RCD2730MM	_	
CD2730DMM	_	6mm x 30m	E14	-	RCD2730DMM	_	_
CD2750MM	_	6mm x 50m	E13	_	RDC2750MM	_	-
CD2730MME	_	‡"/6mm x 150'/50m	E15	-	RCD2730MME	_	_

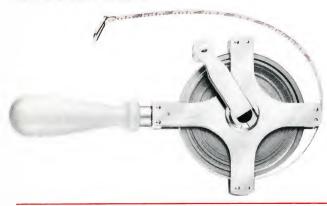
Please see pages 27 & 28 for blade styles.



Chrome clad. $\frac{1}{4}$ "/6mm wide and .015" thick line. Blank space at each end. Riveted, heavy plated brass end clips for holding thongs. Reel is nickel-plated, 4-arm with rollers in each arm for smooth winding. Oversize drum with long, one-piece winding handle for quick return of line. Turning handle over locks line at any desired position. A pair of 580T thongs and a 579 engineer's conversion rule are furnished with each tape or replacement line. To order reel only specify reel No. 12–150 for C1676D.

Cat. No.	N/S No.	″ x ′	Blade Style	Wt. each lb/kg	Repl. Blade No.	N/S No.	Repl. Reel
C1676D	45458	‡" × 100'	E9	2.75/1.24	OC1676D	45459	12-150

Chrome clad®

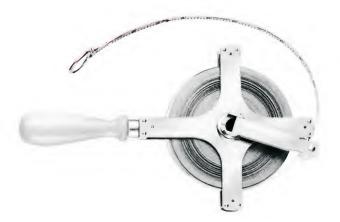


Chrome clad. \(\frac{3}{8}\)"/10mm wide and .008" thick. Instantaneous reading. Zero falls at outer end of ring. Reel is nickel-plated, 4-arm, with rollers in each arm for smooth winding. Long, easy-action winding handle that locks line in any position. Reel available separately.

Cat.	N/S	- 	Blade	Wt. each	Repl. Blade	N/S	Repl.
No.	No.	" x '	Style	lb/kg	No.	No.	Reel
C1286	45400	₹" × 100"	E12	2.5/1.1	OC1286	45401	81-100
C1288	45404	3" × 200'	E12	4.0/1.80	OC1288	45405	81-200
C1286D	45402	₹" × 100'	E9	2.25/1.02	OC1286D	45403	81-200

Please see pages 27 & 28 for blade styles.

Peerless



Chrome and yellow clad. ¼"/6mm wide and .012" thick line. Designed for engineers and surveyors who prefer a 4-arm reel. Line is subdivided throughout and is easily removed from the reel. Reel is nickel-plated, 4-arm, with rollers in each arm for smooth winding. Open design construction aids in drying line and clearing out dirt. Long, easy action winding handle locks line in any position. A pair of 580 finger rings and a 579 engineer's conversion rule are furnished with each tape complete or replacement line.

Reels also available separately.

Cat.	N/S	/mm x //m	Blade Style	Wt. lb/kg	Repl. Blade No.	N/S No.	Repl. Reel
No.	No.			lb/kg			
C1276	45382	∦" x 100′	E12	2.75/1.24	OC1276	45383	
C1278	45386	‡" x 200'	E12	4.25/1.93	OC1278	45387	11-200
C1279	45750	‡" x 300'	E12	6.00/2.72	OC1279	45751	11-300
C1276D	45384	‡" x 100′	E9	2.75/1.24	OC1276D	45385	11-100
C1278D	45388	‡" x 200'	E9	4.25/1.93	OC1278D	45389	11-200
C1279D	45773	‡" x 300'	E9	6.00/2.72	OC1279D	45774	11-300
Y1276	45779	∄" x 100'	E12	2.75/1.24	RY1276	45781	11-100
Y1278	45783	1" × 200'	E12	4.25/1.93	RY1278	45785	11-200
Y1279	45787	1" x 300'	E12	6.00/2.72	RY1279	45789	11-300
Y1276D	45780	₹" × 100'	E9	2.75/1.24	RY1276D	45782	11-100
Y1278D	45784	₹" × 200'	E9	4.25/1.99	RY1278D	45786	11-200
Y1279D	45788	1" × 300'	E9	6.00/2.72	RY1279D	45790	11-300

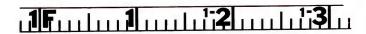
The following tapes are available for export only.

C1276	_	∄" x 100'	E12	2.75/1.24	RC1276	_	11-100
C1278	_	∄" x 200'	E12	4.25/1.93	RC1278	_	11-200
C1276D	_	∄" x 100'	E9	2.75/1.24	RC1276D	_	11-100
C1278D	_	₹" x 200'	E9	4.25/1.93	RC1278D	_	11-200
C2730MM	_	6mm x 30m	E13	2.44/1.11	RC2730MM		11-100
C2750MM	_	6mm x 50m	E13	3.10/1.41	RC2750MM	-	11-∠∪0
C2730MME	_	1"/6mm x 100'/30m	E15	2.38/1.08	RC2730MME	_	11-100
C2750MME	_	₹"/6mm x 164'/50m	E15	_	RC2750MME	_	11-200

For blade styles, see below and page 28.

Engineer's long tapes: blade styles E9 to E15

E9 chrome clad and yellow clad



1" and 3" widths.

Markings on one side only. Graduated to feet, $\frac{1}{10}$ ths and $\frac{1}{100}$ ths with a blank space at each end.

E10 chrome clad



1"/6mm width only.

Markings on both sides. One side graduated in millimeters; other side in feet, inches and $\frac{1}{8}$ ths.

E11 chrome clad



6mm width only.

Markings on one side only. Graduated in millimeters.

E12 chrome clad and yellow clad



¼" and ¾" widths.

Black and red markings one side only. Graduated feet and inches to this with instantaneous readings. 16 inch centers are indicated by diamond symbol.

E13 chrome clad



6mm width only.

Markings on one side only. Graduated meters to millimeters. Red meter numbers and black millimeter numbers at each decimeter.

E14 chrome clad



1"/6mm width only.

Markings on both sides. One side graduated meters to millimeters. Red meter numbers and black millimeter numbers at each decimeter; other side graduated in feet to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths numbered feet and tenths black markings only.

E15 chrome clad



1"/6mm width only.

Markings on both sides. One side graduated in meters to millimeters; other side graduated in feet and inches to $\frac{1}{8}$ ths.

Replacement reels for gaging and engineer's tapes



For lengths up to 300′/100m.

4-arm reel, with rollers in each arm for smooth winding.

Cat.	N/S	▼
No.	No.	"/mm x '/m
81-50	45090	³″/9½mm x 50′/15m
81-100	45091	³ /9½mm x 100′/30m
81-200	45092	§″/9] mm x 205/60m
91-25	45095	½"/12mm x 25'/7½m
91-50	45096	½"/12mm x 50'/15m
91-75	45097	½"/12mm x 75'/22½m
12-150	45033	¼"/6mm x 150'/50m
12-200	45034	¼"/6mm x 200'/60m
11-100	45027	₹"/6mm x 100'/30m
11-200	45028	¼"/6mm x 200'/60m
11-300	45029	¼"/6mm x 300′/100m

Engineering and Surveying tapes Tapes without reels

Designed especially for engineering, surveying and other precise measuring such as route surveys, highways and railways, mining and survey work.

Heavy gage thick steel is used on all Lufkin chain tapes with markings raised against a hard chrome or black background and further protected by an abrasion resistant coating to provide longer life under the most adverse conditions. Each tape and refill is fitted with heavy gage end clips at each end for attachment to reel or tensioning devices and is supplied with 2 leather thongs and a temperature correction scale (Celsius for metric tapes, Fahrenheit for English tapes).

Reels: a choice of reels is available for each style tape. For complete descriptions of reels, see pages 31 and 32. Please order reels separately.

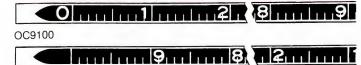
Peerless

8 9 300 Feet.

Yellow clad. $\frac{1}{4}$ "/6mm wide and .015"/0.12 thick. Blade graduated in feet, $\frac{1}{10}$ ths and $\frac{1}{100}$ ths feet.

Cat.	N/S No.	* x ′ × ′	Line Wt. lb/kg	Reqd. Reel
RY1676D	45791	∄" x 100'	1.17/0.53	31-100
RY1678D	45792	∄" x 200'	1.79/0.81	31-200
RY1679D	45793	‡" x 300'	3.32/1.50	31-300

Super Hi-Way chrome clad



OC9100B, OC9200B, OC9300B



O.1 m 0,03 0,08 0,07 0,06 0,05 0,04 0,03 0,02 0,01 Om

.025" thick. Easy-to-read graduations are satin chrome against a black background. Railroad half-gage mark 2', 4½" from zero. The OC9100 line has a blank space at each end. First and last foot of each 100' length graduated to 10ths and 100ths of feet; the balance is graduated every foot. The OC9100B, OC9200B and OC9300B have a blank space at each end and an extra foot before zero, graduated to 10ths and 100ths of feet. Left hand balance of the line is marked every foot except that last foot of each 100' length is graduated to 10ths of feet.

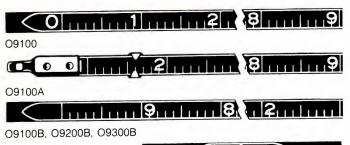
The OC9100M, OC9164M and OC9328M have a blank space at each end of line. Graduated at each 10th meter (dm) throughout with extra 10th meter before zero graduated right to left to millimeters.

N/S No.	y ABILL BILL "/mm x '/m	Line Weight lb/kg	Reqd. Reel
45543	⁵ 6″ × 100′	2 1/1.02	31-130
45547	15·" x 200'	4/1.80	61-200 or 31-200
45561	18 x 300′	6/2.72	61-300 or 31-300
45544	5 x 100'	21/1.02	31-100
45743	8mm x 30m	21/1.02	31-100
45777	8mm x 50m	3 ₹ / 1.70	31-200
45778	8mm x 100m	6 1/2.83	31-300
	No. 45543 45547 45561 45544 45743 45777	No. "/mm x '/m 45543 1 5 " x 100' 45547 1 5 " x 200' 45561 1 5 " x 300' 45544 1 5 " x 100' 45743 8mm x 30m 45777 8mm x 50m	N/S No. "/mm x '/m lb/kg 45543

The following engineering tapes complete with reel are available for export.

Cat. No.	N/S No.	y A IIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIIII	Repl. Reel	Pack lb/kg	Shelf Pack		N/S No.
C5030MB	_	8mm x 30m	31-100	2.8/1.27	1	RC5030MB	
C5050MB	_	8mm x 50m	31-200	5.7/2.59	1	RC5050MB	-3
C50100MB	_	8mm x 100m	31-300	8.75/3.94	1	RC50100MB	_
C9030MB	_	8mm x 30m	31-100	3.55/1.61	1	RC9030MB	
C9050MB	_	8mm x 50m	31-200	6.5/2.94	1	RC9050MB	
C90 100MB	_	8mm x 100m	31-300	1.04/4.69	1	RC90100MB	_
C9100	_	ਨੂੰ ″ x 100′	31-100	3.55/1.61	1	RC9100	
C9100B	_	5 " x 100"	31-100	3.55/1.61	1	RC9100B	
C9200B	_	15 " x 200"	31-200	7.3/3.30	1	RC9200B	_
C9300B	_	⁵ 6" x 300"	31-300	9.8/4.42	1	RC9300B	

Super Hi-way nubian



.025" thick, special analysis steel. Railroad half-gage mark is 2' 4½" from zero end.

The 09100 line has a blank space at each end. The first and last foot of each 100' length is graduated to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet; the balance is graduated every foot.

The O9100A line begins and ends measurement at extreme outer ends of clips; first and last foot of each 100' length is graduated to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet. Balance is marked every foot. The O9100B, O9200B and O9300B lines have a blank space at

each end. Extra foot before zero is graduated right to left ¹/₁₀ths and ¹/₁₀₀ths. Balance is marked every foot except last foot of each 100' length, which is in 100ths of feet.

Cat. No.	N/S TE	#####################################	Line Weight lb/kg	Reqd. Reel
09100	45541	5" × 100'	21/1.02	31-100
09100A	45542	5" × 100'	21/1.02	31-100
09100B	45543	5" × 100'	21/1.02	31-100
09200B	45546	5" × 200'	4/1.80	31-200 or 61-200
09300B	45559	5" × 300'	6/2.72	31-300 or 61-300
00000		10		

Pioneer chrome clad

Lightweight and easy to handle. ¼"/6mm wide and .020" thick. Catenary problems are minimized.

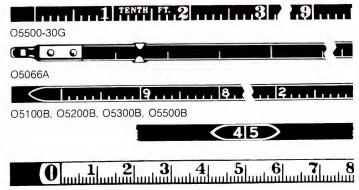
This line has blank space at each end and an extra foot before zero graduated right to left to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet. Balance graduated every foot except last foot of each 100' length is in $\frac{1}{100}$ ths.

Railroad half-gage mark 2' 4½" from zero end.

9 mm 8 m 2 mm 1
OC5100B, OC5200B, OC5300B, OC5500B
4 5

N/S -	" x '	Line Weight lb/kg	Reqd. Reel
45490	₹" × 100'	1½/.68	31-100
45494	1" × 200'	3/1.36	31-200 or 61-200
45496	1" × 300'	41/2.04	31-300 or 61-300
	No. 45490 45494	No. "x' 45490 \(\frac{1}{4}\)" \times 100' 45494 \(\frac{1}{4}\)" \times 200'	N/S Weight Weight

Pioneer nubian



05500-30G—first 30 feet graduated in feet, $\frac{1}{10}$ ths and $\frac{1}{10}$ ths of feet, instantaneous reading. 05066A is graduated in links and poles (rods) with end links in $\frac{1}{10}$ ths of link.

05100B, 05200B, 05300B and 05500B lines have blank space at each end and an extra foot before zero graduated right to left to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths of feet. Balance graduated every foot except last foot of each 100' length is in $\frac{1}{100}$ ths. Railroad half-gage mark 2'4½" from zero end.

05100M has metric graduations. The first and last decimeters are graduated in millimeters. The balance of the first and last meter is graduated in centimeters with the balance of the line graduated in decimeters. Available in 30, 50 and 100 metric lengths.

Cat. No.	N/S No.	/ Pill Pill	Line Weight Ib/kg	Reqd. Reel
05500-30G	45499	₹" × 500'	7/3.17	61-500
05066A	45485	1" x 100' links	11/.57	31-100
05100B	45488	∄" × 100′	1½/.68	31-100
05200B	45493	1" × 200'	3/1.36	31-200 or 61-200
05300B	45495	1" × 300'	41/2.04	31-350 or 61-300
05500B	45498	1" × 500'	7/3.17	51-500
05100M	45489	6mm x 30m	11/.68	31-100

Topographic trailer



Lightweight, strong and accurate — the perfect tape for engineers and mappers for slope correction work.

Use topographic level to determine slope. Measure two chains on the slope and as many graduations on the trailer as the arc reading shows. This distance on the slope represents two chains of horizontal distance. Use the back of the tape to determine one chain horizontal distance.

The line is ½"/6mm wide and .020" thick. Permanent black markings are etched into the raised bright steel portion of the line. Line is 2½ chains (2 chains plus trailer) or 165 feet long. It is easily attached to the reel.

Cat. No.	N/S No.	× × ′ × ′	Line Weight lb/kg	Reqd. Reel	
05165T	45492	1" x 250 links 21 chains or 165'	2≩/1.25	61-200	

Canyon



This lightweight, rugged tape, \(\frac{1}{8}\)"/3mm wide and .025" thick, is extremely useful when minimum weight and wind resistance are important factors. Widely used in spanning bridges, valleys or canyons. Permanent black markings are etched into raised bright steel portion of line. Plated end clips are reinforced. Line attached easily to reel.

This line has blank space at each end and an extra foot before zero graduated right to left to $\frac{1}{10}$ ths and $\frac{1}{100}$ ths. Balance is marked every foot except last foot of each 100' length is graduated to $\frac{1}{100}$ ths of feet.

Cat. No.	N/S No.	*	Line Weight Ib/kg	Reqd. Reel
04300B	45483	∄" × 300′	3½/1.59	41-300

Reels for chain tapes

All reels are made of high quality nickel-plating and are fitted with an iridescent red hardwood handle. Open design construction aids in drying line and clearing out dirt. Long, easy-action winding handle locks line at any point.

31 and 51 series reels



For tapes up to 500'/150m in length. 4-arm nickel-plated reel and spike end. Large drum for faster, easier rewinding. Tape easily attached to reel.

Cat.	N/S No.	<u>Z</u> ELL	Wt. each lb/kg	Shelf Pack
31-200	45053	5"/8mm x 200'/60m	3.3/1.5	1
31-300	45054	5"/8mm x 300'/100m	3.8/1.7	1
31-500	45055	5/8 /8mm x 500′/150m	4.79/2.17	1
51-300	45072	‡"/6mm x 300'/100m	3.07/1.39	11

41 and 61 series reels



For tapes up to 500'/150m in length. Designed specifically for long, narrow tapes. Tapes easily attached to reel.

Cat.	N/S			Shelf
No.	No.	"/mm x '/m	lb/kg	Pack
41-300	45060	1"/3mm x 300'/100m	3.09/1.40	1
61-200	45075	1"/6mm x 15"/8mm x 200'/60m	2.87/1.30	1
61-300	45076	1"/6mm x 15"/8mm x 300'/100m	_	1
61-500	45077	5"/8mm x 1"/6mm x 500'/150m	5.02/2.28	1

31 - 100 reels



For 100'/30m lengths only. 2-arm, nickel-plated reel. Tapes easily attached to reel.

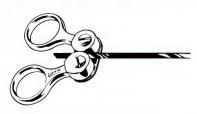
Cat.	N/S	*	Wt. each	Shelf
No.	No.		lb/kg	Pack
31-100	45051	5" to 1"/8mm to 6mm x 100'/30m	1.3/.59	1

Short and long tape accessories Detachable hooks 552 (45283)



This hook, easily attached or removed from standard ring tape line, lets one man take measurements unassisted. Hook is brass, heavily nickel-plated. Serrated face grips firmly and releases easily. On tapes measuring from outer end of ring, zero falls at inside of hook. Popular for use on Anchor and Leader chrome clad tapes, and Banner and Royal Ni-Clad metric tapes. 552—for lines \{\frac{3}{2}\)"/10mm wide.

Tape clamp handle 584 (45314)



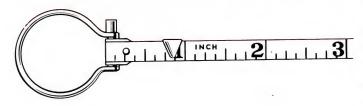
Used for quickly and positively gripping a steel tape at any point, and applying light or heavy tension. It is applied and removed by simply operating the handle. When used properly, it will not damage a tape in any way. Made of chrome-plated zinc alloy.

Leather thongs 580T (45310)



Same as furnished with all Lufkin chain tapes and certain types of our other tapes. 36''/914mm long and $\frac{1}{4}''/6$ mm wide. Chrome tanned and practically unbreakable. Sold in pairs.

Engineer's tape ring 580 (45306)



This ring, for ¼"/6mm wide tapes only, is furnished in pairs with Wolverine engineer's and surveyor's tapes and Peerless chrome clad and Peerless nubian chain tapes.

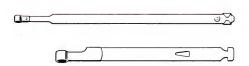
This sturdy, nickel-plated steel, round finger ring is $1\frac{1}{8}''/128$ mm in diameter. It swings on a hinge pin. Riveted to its lip is a steel supporting strip $3\frac{1}{2}''/89$ mm long. Ring is attached by sliding tape through ring guide lips and over pin or stud. It is also easy to detach last end ring when returning tape to reel. Ring does not interfere with reading of graduations. Zero point falls at the end of the line, as illustrated.

Triangular tape handle 580E (45307)



This solid brass handle provides a comfortable grip for measuring with chain tapes. It is easily attached and removed from tape and clip. Can be used on $\frac{1}{4}$ "/6mm and $\frac{5}{16}$ "/8mm wide steel tapes.

Tape fingers 580F (45308) & 580H (45309)

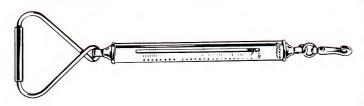


A tape finger is the bright metal connecting strip between drum assembly and steel tape line. Loop end of the finger engages a post on the drum; other end extends out of the case and attaches to the line.

 $580F-\frac{1}{4}^{\prime\prime}/6mm$ wide, $7^{\prime\prime}/178mm$ long. For C1276, C1278, 1279X, C1376D

 $580H - \frac{3}{8}''/10$ mm wide, $5\frac{3}{4}''/146$ mm long. For attaching $\frac{3}{8}''/10$ mm wide steel tapes to cases. For C1286, C1288.

Tape tension handles 586 (45315), 586D (45316)



For externely accurate measurements, steel tapes should be used under proper tensions (see page 25). The tension handle is attached to one end of the tape and the proper tension is applied when the measurement is taken. When measuring with an unsupported line, tension handle should be used to counteract the effect of sag. Rustproof brass construction with black-filled etched graduations. Graduations begin at snap end and are easy to read when tension is applied.

586 – Capacity of 30 lbs. by $\frac{1}{2}$ lbs. and 25 kg by .25 kg.

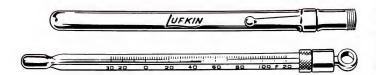
 $586D-Capacity of 50 lbs. by <math display="inline">\frac{1}{2}$ lbs. and 30 kg by .25 kg.

Engineer's conversion rule 579 (45305)



This 6"/152mm conversion wood rule is included with all Lufkin engineer's and surveyor's tapes and chain tapes. It may also be purchased separately. Convenient, handy pocket size. Graduated one side lower edge inches to $\frac{1}{16}$ ths of an inch, and upper edge $\frac{1}{10}$ ths and $\frac{1}{10}$ ths of feet. Other side is graduated on upper edge inches and $\frac{1}{10}$ ths of inches; lower edge graduated with temperature correction scale for Lufkin 50 and 100 foot steel tapes.

Pocket thermometers



Fahrenheit thermometer 583 (45313)

A high-quality thermometer furnished in a metal carrying case. An essential tool when measuring to extreme accuracy. Temperature range is from $-30\,^{\circ}\text{F}$ to $+120\,^{\circ}\text{F}$, graduated in $2\,^{\circ}$ increments. It is $5\frac{1}{2}''/140\text{mm}$ long and has pocket clip.

Celsius thermometer 583C (45681)

Temperature range is from -40 °C to +50 °C graduated in 1 ° increments.

Surveyor's steel arrows 593-14 (45325)



Lufkin surveyor's arrows are made of $\frac{3}{16}$ " /4.76 mm hardened round steel. 14"/356mm long. Furnished in sets of 11, the number required for each 1,000 feet when chaining with a 100-foot tape. Large eye for easier handling.

593 – Enameled alternately red and white, easy to locate in grass or brush.

Leather quiver 597 (45328)



Carrying quiver for 14-inch surveyors steel arrows is made of the best-quality sole leather. Designed and shaped for convenient carrying around the waist. Furnished with 48" leather belt.

Carrying rings for surveyor's arrows 596 (45326) and 596A

(45327)



596- Made of $\frac{3}{16}$ " /4.76mm round steel, 6" /152mm in diameter. White enameled finish.

 $596A - Made of \frac{3}{16}r''/4.76mm$ round steel, chrome finish. Flat end for carrying arrows.

576 (45285) Tape repair kit



A sturdy, practical kit for splicing steel tapes of all kinds, widths and weights. Can be used to repair tape lines in the field. The steel punch block, $2\frac{1}{8}$ "/54mm high, sits firmly on a $\frac{1}{8}$ "/22mm x $2\frac{3}{4}$ "/70mm base. The piercing punch has head for striking with hammer. Tap of hammer on fulcrum lever raises the punch. Face of block is notched and has tape slot and three sighting lines to simplify accurate locating of holes. The back has hardened, flush, inset riveting block. Piercing punch is readily removed and one extra punch is furnished. Packed in compact case, kit weighs 3 lbs. Folds and is held by the strap to size of 9"/225mm x $3\frac{1}{2}$ "/89mm x $1\frac{1}{2}$ "/38mm.

Instructions for use

Punch only one piece at a time. For matching to locating lines on punch block (when punching holes), always use same graduation on the tape to be repaired and the repair piece of tape. Follow closely further instructions given on the sheet packed with each kit.

576 and 576A tape repair kit contains these items in a compact carrying case

Punch and riveting block with piercing punch; cutting snips; riveting hammer; steel tape repair pieces of various kinds, widths, weights and markings, including chrome clad, nubian (black), with and without rings; rivet set, tweezers, extra piercing punch; 1 lot of solid steel rivets in a box.

Separate parts of 576 repair kit

	Cat.	N/S	•
Qty.	No.	No.	Description
1	_	_	Case (Duck)
1	576B	45287	Punch Block Complete (notched to show punch)
1	_	_	Hammer
1000	576D	45288	Rivets
1	576E	45289	Extra Punches
1	576F	45290	Rivet Set
1	_	_	Shears (Snips)
1	_	_	Tweezers
14	576G	45291	Tape Repair Pieces (Group 1)

Tape repair kit 576A (45286) to meet Mil-R-11567

	Cat.	N/S	
Qty.	No.	No.	Description
1	_	_	Case (Duck)
1	576B	45287	Punch Block Complete (notched to show punch)
1	_	_	Hammer
2	_	_	Extra Punches
1000	576D	45288	Rivets
1	576F	45290	Rivet Set
1	_	_	Shears (Snips)
1	_	_	Tweezers
31	_	_	Tape Repair Pieces (Group 11)
12	-	_	Eureka Sleeves (4 each $\frac{1}{4}$ "/6mm $-\frac{5}{16}$ "/8mm $-\frac{3}{8}$ "/10mm)

Tape repair kit 578 (45799)



With this combination hand punch and splicing tool, secure and accurate splices with eyelets can be made on the job quickly, saving valuable time. Each 578 kit includes four Eureka repair sleeves (described below) which are better for repairing the heavier types of ½"/6mm and ½"/8mm tapes. Leatherette case with snap fastener keeps all items intact. Convenient to carry, it measures 3"/76mm x 9"/229mm and weighs ¾ lb. when packed.

578 kit contains these items, in leatherette case: punch and eyeleting tool; supply of long and short eyelets; assortment of ungraduated steel tape pieces; 4 Eureka repair sleeves (2 each of ½"/6mm and ½""/8mm).

Separate parts of 578 repair kit

Cat. No.	N/S No.	Description	
578A	45800	Hand punch and eyeleting tool complete	
577B	45293	Punch	
577C	45294	Eyelets only, 500 short	
577D	45295	Eyelets only, 500 long	
578B	45801	Piercing punch and plate	
578C	45802	Female and male set dies	

Eureka tape repair sleeves



All that is needed to splice a steel tape quickly is one of these sleeves and a match.

To weld sleeve to tape: (1) clean tape ends; hammer them if there is any burr; (2) butt broken ends together inside sleeve, taping sleeve unit tight; (3) burn match underneath sleeve, holding tape until cool.

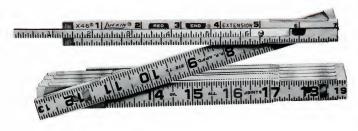
These thin, sheet metal sleeves are ready-coated with solder and flux. Twelve sleeves of one size are packed in a small, durable box with a piece of emery cloth. Directions in each box. Sleeves available as follows:

Cat.	N/S		
No.	No.	Description	
577K	45300	for ½"/3mm tapes	
577M	45301	for ¼"/6mm tapes	
577P	45302	for 5 "/8mm tapes	
577R	45303	for 3"/10mm tapes	
577T	45304	for ½"/13mm tapes	

Folding wood rules Red End® series

First choice of carpenters and other professional craftsmen. Boxwood finish wood section are 25% thicker than regular wood rules—will withstand hard daily usage. Bold red and black markings embedded in wood contrast sharply against white or natural finish background. Markings protected by clear abrasive resistant coating—will not chip, peel or discolor. Superior riveted lock joints are long wearing; brass plates are designed specifically to eliminate end play and retain accuracy. End caps and strike plates are solid brass to prevent wear.

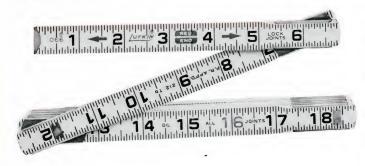
Red End® extension



Graduated brass slide extends full 6 inches. Marked both sides and both edges to $\frac{1}{16}$ ths of an inch, 16 inch stud centers in red, regular, outside markings. HX46 has sturdy folding brass plated hook; zero falls at inside of hook, permits measuring beyond arm's reach. X46F has flat, inside markings. Numbering begins on inside of rule; measurement lies close to the work. X46X has two 6-inch brass extension slides. No matter how the rule is unfolded an extension is ready for use on first section.

Cat.	N/S No.	/m x ″ /mm	lb/kg	Shelf Pack
X46	45062	6′ x §″	2.27/1.03	6
HX46	45065	6' x §"	2.30/1.04	6
X48	45066	8' x §"	2.95/1.34	6
HX48	45067	8' x §"	3.01/1.37	6
X46F	45063	6' x §"	2.28/1.03	6
X46X	45064	6' x §"	2.39/1.08	6

Red End®



Marked both sides, both edges to $\frac{1}{16}$ ths; 16 inch stud centers in red. Regular outside reading. Zero falls on inside of hook, permits measuring beyond arm's reach.

O66F has inside markings. Numbering begins on inside of rule; measurement lies close to the work.

Cat.	N/S No.	*	lb/kg	Shelf Pack
066	45084	6' x §"	1.68/0.76	6
066F	45086	6' x ∄"	1.64/0.74	6
068	45088	8' x §"	2.27/1.03	6
068F	45089	8' × §"	2.27/1.03	6

Red End® - Two Way®





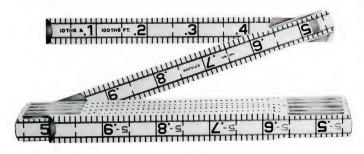
For measuring left to right and right to left. Flat, inside markings lie close to the work. 966 marked both sides, both edges in feet, inches and $\frac{1}{16}$ ths.

966CM marked both sides, inside flat from left or right in millimeters, and numbered centimeters.

062CME marked both sides, outside graduated decimeters to millimeters, and numbered centimeters. Lower edge of lath and inside graduated consecutive inches to 1/8 ths on upper edge. 062CM graduated in millimeters, numbered centimeters.

Cat.	N/S No.	✓	Pack wt. lb/kg	Shelf Pack
966	45375	6' x §"	1.7/.77	6
966CM	45844	2m x 16mm	1.7/.77	6
062CME	45840	6'/2m x §"/16mm	1.7/.77	6
062CM	45839	2m x 16mm	1.7/.77	6
062CM	45839	2m x 16mm	1.7/.77	_

Red End® engineer's

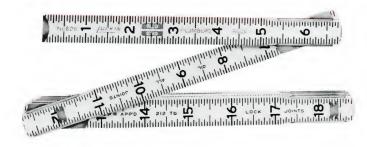


066D and 1066D graduated in feet, $\frac{1}{10}$ ths and $\frac{1}{100}$ ths feet. Regular outside markings in feet, inches and $\frac{1}{10}$ ths. Red foot figures.

Decimal points on engineer's scale prevent reading errors. 062CMD graduated in millimeters, numbered centimeters one side, other side graduated decimal $\frac{1}{10}$ ths of feet.

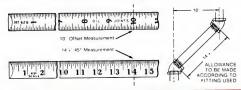
Cat. No.	N/S No.	*	Pack Wt. lb/kg	Shelf Pack
062CMD	45841	6'/2m x 18"/16mm	1.7/.77	6
066D	45085	6' x ₹"/16mm	1.7/.77	6
1066D	45376	6' x \{ ''/ 16mm	2.27/1.03	6
1066CMD	45845	6'/2m x { ''/16mm	2.27/1.03	6

Red End® plumber's

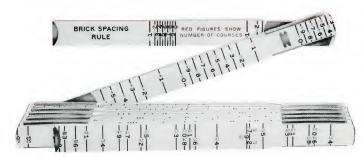


Regular outside markings in black, vertical, consecutive inches to $\frac{1}{16}$ ths, both edges. Flat inside markings in red, 45° scale, inches to $\frac{1}{16}$ ths upper edge only.

Cat.	N/S No.	/m x "/mm	Pack Wt. lb/kg	Shelf Pack
626	45343	6′ x §″	1.7/.77	6



Red End® brick mason's

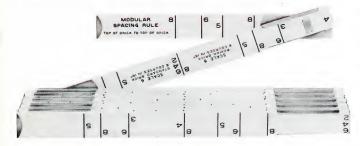


Used by bricklayers for spacing brick courses. Regular outside markings in black, vertical, consecutive inches to $\frac{1}{16}$ ths, both

Brick mason's scale on inside – red course counters numbered consecutively.

Cat.	N/S	/m x "/mm	Pack Wt.	Shelf
No.	No.		lb/kg	Pack
636	45344	6'×{18"	2.27/1.03	6

Red End® modular spacing

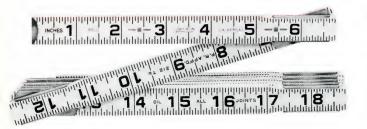


Designed for masonry work such as laying concrete and glass blocks, facing tile and special brick.

Outside graduated on both edges in consecutive inches to $\frac{1}{16}$ ths, 16 inch centers in red. Inside readings marked in 6 scales for various types of block and brick on a 16 inch module.

Cat.	N/S	*	Pack Wt.	Shelf
No.	No.		lb/kg	Pack
646	45345	6′ x §″	2.27/1.03	6

Home shop universal



Ends are finished and sealed. Spring joints and end caps are brassplated steel. 460 and 460F both graduated consecutive inches to \$\frac{1}{16}\$ths on both edges and sides. 460 has regular markings; numbering is on outside of rule. 460F has flat markings; numbering is on inside of rule.

460CM—outside reading, graduated in millimeters, numbered centimeters.

460CME—outside reading, graduated millimeters, numbered centimeters one side, inches on other side.

Cat.	N/S No.	✓ ► L→ I //m x "/mm	Pack Wt. lb/kg	Shelf Pack
460	45277	6′ x §″	1.7/.77	6
460F	45278	6'x \{ "	1.7/.77	6
460CM	45842	2m x 16mm	1.7/.77	6
460CME	45843	6'/2m x 5"/16mm	1.7/.77	6

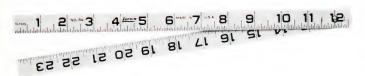
Doyle log scale



Hardwood section with ends finished and sealed. Folding hook, lock joints and end caps are brass plated steel. Marked outside for 10 and 18 foot logs, lower edge consecutive inches to $\frac{1}{16}$ ths. Marked inside for 12, 14 and 16 foot logs.

Cat.	N/S No.	x "/mm	Pack Wt. lb/kg	Shelf Pack
524	45282	48" x §"	1.13/0.51	1

Steel blacksmith's rules



This 2-foot, 2-fold rule is made of tempered steel, $\frac{3}{4}$ " wide, $\frac{1}{32}$ " thick. Deeply etched black markings are legible and permanent. Riveted joints have large side washers and a stop, bringing rule to a firm stop when opened straight. The lower edge on one side graduated to $\frac{1}{16}$ ths of an inch, upper edge on other side to $\frac{1}{8}$ ths, lower edge 75 circumference inches to $\frac{1}{8}$ ths for converting diameters directly to circumference measurements.

Cat.	N/S No.	√m x "/mm	Pack Wt. lb/kg	Shelf Pack
86	45660	2′ × ₹″	1.85/0.84	12

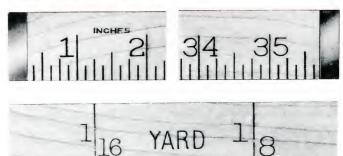
Bench rules



One piece, selected hardwood, well seasoned. Tough, clear coating protects natural finish. Bold markings are embedded in the wood. Brass end caps prevent wear. Large graduations, inches numbered vertically top to bottom; opposite sides read from opposite ends. Marked both sides, both edges, one side in \$\frac{1}{8}\$ ths, other side in \$\frac{1}{16}\$ ths.

Cat.	N/S No.	" x " x "	Pack Wt. lb/kg	Shelf Pack
341V	45058	1" x 11" x 12"	1.40/0.64	12
34V	45057	1" x 11" x 24"	2.65/1.20	12

Hardwood yardstick



One-piece, selected hard maple, smooth and well finished. Bold markings embedded in the wood. Brass end cap prevents wear. Marked on both sides reading from the same end. One side graduated on lower edge only in inches to \(\frac{1}{8}\)ths; other side graduated on both edges in fractions of yards, \(\frac{1}{16}\), \(\frac{1}{8}\), \(\frac{1}{

Cat.	N/S No.	" x " x "	Pack Wt. lb/kg	Shelf Pack
7122	45505	₹" x 1" x 36"	3.14/1.42	12

Beveled 1½ yardstick



Designed for tailors and dressmakers for laying out, cutting, etc. Beveled both edges on one side so markings lie close to the work. Hole in one end for hanging.

Marked on bevel side only, graduated inches to $\frac{1}{8}$ ths; opposite edges read from opposite ends. One flat center surface graduated in fractions of yards $\frac{1}{18}$, $\frac{1}{8}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{1}{2}$, $\frac{3}{8}$, $\frac{3}{4}$, $\frac{7}{8}$, $\frac{3}{8}$, $\frac{1}{8}$, $\frac{1}{8}$, $\frac{3}{8}$, $\frac{3}$

Cat.	N/S No.	" x " x "	Pack Wt. lb/kg	Shelf Pack
7127	45506	$\frac{5}{16}$ " x $1\frac{1}{2}$ " x 45"	6.08/2.76	12

Flat rules



Used extensively in shop, factory and textile industry as a bench rule. Easily read from either side of bench or table. Can be brought quickly to position on work, as measurements start at opposite ends. One-piece, selected hard maple, properly seasoned, smooth and well-finished, with clear protective coating. Hole in end for hanging. Bold markings embedded in wood. Large graduations, marked both sides, both edges. One side, inches to $\frac{1}{16}$ ths. Brass end caps prevent wear.

N/S No.	" x " x "	Pack Wt. lb/kg	Shelf Pack
45507	1" x 11 x 36"	4.58/2.08	12
45508	1" x 11 x 48"	6.20/2.81	12
45509	1" x 11 x 60"	_	12
45510	1" x 11" x 72"	_	12
	No. 45507 45508 45509	No. "x"x" 45507 \\ \frac{1}{4}\times \tau \frac{1}{2}\times \ta 36\times \\ 45508 \\ \frac{1}{4}\times \ta \frac{1}{2}\times \ta 48\times \\ 45509 \\ \frac{1}{4}\times \ta \frac{1}{2}\times \ta 60\times \\ \end{align*}	No. " x " x " lb/kg 45507 \(\frac{1}{4}\)" x 1\(\frac{1}{2}\)" x 36" 4.58/2.08 45508 \(\frac{1}{4}\)" x 1\(\frac{1}{2}\)" x 48" 6.20/2.81 45509 \(\frac{1}{4}\)" x 1\(\frac{1}{2}\)" x 60" -

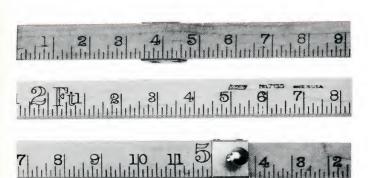
Glass cutter's rules, with brass lip



Used extensively by glass distributors and in glass factories. Superior rules of one-piece, selected hard maple, smooth and well-finished with clear protective coating. Bold markings embedded in the wood. Large graduations, marked both sides, both edges, consecutive inches to $\frac{1}{8}$ ths. One end has sturdy, extruded brass lip or flange extending $\frac{2}{8}$ from one flat surface of rule, attached by four rivets extending through both side plates. Other end has brass cap. On upper face, zero falls at inside of lip, on lower face at opposite end of rule.

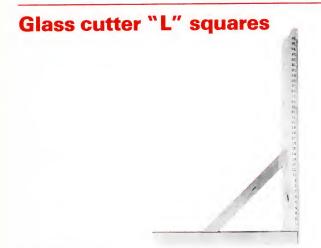
Cat.	N/S No.	* ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★	Pack Wt. lb/kg	Shelf Pack
7142	45513	3" x 2" x 48"	_	1
7144	45514	3" x 21" x 72"	_	1
7146	45515	₹" × 3" × 96"	_	1
7148	45516	3" x 3" x 120"	_	1
7149	45517	₹" × 3" × 144"	_	1

Builder's extension rules



Two-section sliding rule lets one man quickly and accurately measure from floor to ceiling or across openings. Tension spring and set screw hold sections secure, closed or extended. Selected, polished hard maple, smooth and well-finished, with clear protective coating. Bold markings embedded in the wood. Large graduations; marked feet, inches and \(\frac{1}{8} \)th son lower edge of both sides. Brass plated clamps and end caps prevent wear. Sections are 1" wide, \(\frac{3}{8} \)" thick, with stop at both ends. 7165 closed length is 5 feet; opens to 10 feet. 7166 closed length is 6 feet; opens to 12 feet.

Cat. No.	N/S No.	Length	Pack Wt. lb/kg	Shelf Pack
7165	45518	5' to 10'	1.37/0.62	1
7166	45519	6' to 12'	1.47/0.66	1



These thoroughly seasoned hardwood squares are well-finished in the natural wood and have substantial corner brace with brass side plates. Blade is mortised through and securely riveted into the stock. Stock is brass bound on inner face and has shoulder on both sides of blade so square can be used on either side. One-piece, hard maple; natural finish with clear protective coating. Bold markings embedded in the wood. Large graduations, marked both sides on outer edges, inches to ½ ths. Zero on both sides falls at inside of stock.

Cat. No.	N/S No.	Blade X X X X X	Stock "x"x"	Shelf Pack
7170	45520	1" × 3" × 36"	13" x 2½" x 27"	1
7171	45521	1" × 3" × 48"	13" x 2½" x 27"	1
7172	45522	1" × 3" × 60"	13" x 21" x 30"	1

Metric-English wood meter stick



7112ME is a high quality hardwood meter stick used in schools and laboratories where metric measurements are required. One side has large markings on both edges, centimeters to millimeters. The other side upper edge only is consecutive inches to ½ths.

Cat.	N/S	TELLI FILLI	Pack Wt.	Shelf
	No.	F-L→I	lb/kg	Pack
7112ME	45504	6.35mm x 25mm x 1m	.27/.12	1

School shop steel rules

1 2 x x x x 3 4 terem 5 6 x x 0 x x 8 9 10 11

Medium weight, tempered steel rules; popular in school shops and industrial plants. Hole in one end for hanging. Deeply-etched, permanent markings are black-filled for easy reading. Large graduations, marked upper edge both sides, one side $\frac{1}{8}$ ths, other side, $\frac{1}{18}$ ths. Opposite measure from opposite ends.

Cat.	N/S No.	" x " x "	Pack Wt. lb/kg	Shelf Pack
60-12	45073	$\frac{1}{32}$ " $\times \frac{3}{4}$ " $\times 12$ "	0.15/0.07	6
60-24	45074	$\frac{1}{32}$ " $\times \frac{3}{4}$ " $\times 24$ "	0.84/0.38	6

One-piece steel rules



These substantial tempered steel rules are in demand by industrial users who want accuracy and legibility at a popular price. Also preferred by many school shop instructors. Bold markings, deeplyetched and permanent, are black-filled for easy reading; heavier than on machine-divided rules. Large graduations, marked both sides, both edges. Upper edge in $\frac{1}{8}$ ths, lower edge in $\frac{1}{18}$ ths. Opposite sides measure from opposite ends.

Cat.	N/S	× x x x x x	Pack Wt.	Shelf Pack
No.	No.			1 ack
62-1	45079	$\frac{1}{16}$ " × $1\frac{1}{4}$ " × 1'	0.25/0.11	1
62-2	45080	$\frac{1}{16}$ " x $1\frac{1}{4}$ " x 2'	0.51/0.23	1
62-3	45081	$\frac{1}{16}$ " x $1\frac{1}{4}$ " x 3'	0.76/0.34	1
62-4	45082	$\frac{1}{16}$ " x $1\frac{1}{4}$ " x 4'	1.02/0.46	1
62-6	45083	16" x 11 x 6'	1.59/0.72	1

Aluminum yardstick



Finest quality aluminum yardstick. Lightweight, flexible, rustproof, tarnish-free, plus sharply-defined, easy-to-read markings. Straight parallel edges for greater accuracy. Finer graduations read easier. Marked one side only, both edges in consecutive inches to $\frac{1}{16}$ ths. Lies flat and has hang-up hole for storage.

Cat.	N/S No.	× " × "	Pack Wt. lb/kg	Shelf Pack
1260	45380	1 ₆₄ " × 36"	1.67/0.76	6

Metric-English aluminum meter stick



This aluminum meter stick is very useful in helping to make the transition to the metric system. It's graduated on the front side in inches to $\frac{1}{16}$ th on upper edge and in decimeters, centimeters and millimeters on the lower edge. On the reverse side tables of equivalents and conversions are shown.

Cat.	N/S No.	*	Pack Wt. lb/kg	Shelf Pack
1261ME	45381	1"/27mm x 1m	1.6/.80	6

Tinner's steel circumference rule





A standard rule with tinners and other sheet metalworkers. Tempered medium-weight steel; hole in one end for hanging. Deeply-etched, permanent markings are black-filled for easy reading. Special graduations on 95-3' model, one side, upper edge, marked consecutive inches to ½ths, lower edge, marked up to 113 circumference inches to ½ths; on 95-4' model, one side, upper edge, marked consecutive inches to ½ths, lower edge, marked up to 150 circumference inches to ½ths. Reverse side of both models has formulas for calculating circumference diameter, area, etc., and size tables for laying out measures and cans.

Cat.	N/S No.	× ″ × ′ × ′	Pack Wt. lb/kg	Shelf Pack
95-3	45098	18" x 11 x 3'	0.78/0.35	1
95-4	45099	18" x 14" x 4'	1.04/0.47	1

Metric school shop steel rule





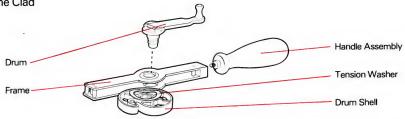
This metric steel rule is graduated both sides on the top edge to millimeters. Every tenth millimeter is numbered throughout length. Bold graduations are easy to read; rule lies flat and has hang-up hole for storage.

Cat. No.	N/S No.	mm x mm/m	Pack Wt. lb/kg	Shelf Pack
60M-300	45658	18mm x 300mm	0.08/0.08	1
60M-600	45659	18mm x 600mm	0.15/0.06	1
62M-300	45654	31mm x 300mm	0.26/0.18	1
62M-600	45655	31mm x 600mm	0.52/0.24	1
62M-1M	45656	31mm x 1m	0.83/0.38	1
62M-2M	45657	31mm x 2m	1.64/0.74	1

Replacement parts for reels and frames See catalog pages no. 28, 31 and 32 for listing of tape lines.

81 & 91 Series reels

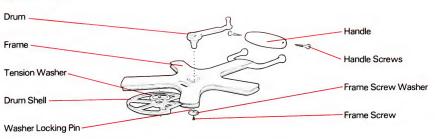
For $\frac{3}{8}$ " /10mm and $\frac{1}{2}$ " /13mm Widths — Chrome Clad and Gaging Tapes



Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Frame Cat. No.	Handle Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.
3"	50'	2 Arm	81-50	17124	10064	11819	17880	17282
3"	100′	4 Arm	81-100	17125	10065	11819	17880	17282
3"	200′	4 Arm	81-200	17127	10067	11819	17880	17282
<u>}</u> "	25′	2 Arm	91-25	17129	10069	11819	17880	17289
ļ."	50′	2 Arm	91-50	17130	10070	11819	17880	17289
<u>1</u> "	75′	4 Arm	91-75	17133	10071	11819	17880	17289

41 & 61 Series reel frames

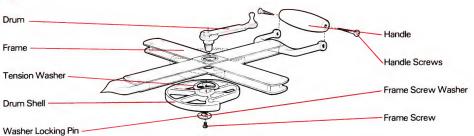
For 200, 300 and 500 Foot Lengths



Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Handle Screw Cat. No.	Handle Cat. No.	Frame Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.	Washer Locking Pin Cat. No.	Frame Screw Washer Cat. No.	Frame Screw Cat. No.
1"	200'	5 Arm	41-200	17105	5315	11806	10057	17880	17315	29395	12806	12401
1"	300′	5 Arm	41-300	17106	5315	11806	10052	17880	17315	29395	12806	12401
1"	500′	5 Arm	41-500	17107	5315	11806	10053	17880	17315	29395	12806	12401
5 or 1"	200'	5 Arm	61-200	17105	5315	11806	10251	17880	17296	29395	12806	12401
5 " or 1"	300′	5 Arm	61-300	17106	5315	11806	10252	17880	17296	29395	12806	12401
5 " or 1"	500′	5 Am	61-500	17107	5315	11806	10253	17880	17296	29395	12806	12401

31 & 51 Series reels

For Over 100 Foot Lengths

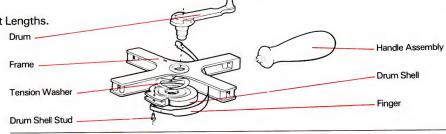


Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Handle Screw Cat. No.	Handle Cat. No.	Frame Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.	Washer Locking Pin Cat. No.		Frame Screw Cat. No.
5 or 1"	100'	4 Arm	31-100	17104	5315	11806	10056	17880	17296	29395	12806	12401
5 "	200′	4 Arm	31-200	17105	5315	11806	10057	17880	17296	29395	12806	12401
16"	300′	4 Arm	31-300	17106	5315	11806	10058	17880	17296	29395	12806	12401
1"	300′	4 Arm	51-300	17106	5315	11806	10046	17880	17296	29395	12807	12401
16"	500′	4 Arm	31-500	17107	5315	11806	10059	17880	17296	29395	12806	12401

11 Series reels

For ‡"/6mm wide – 100, 200 and 300 Foot Lengths.

Fits Peerless Chrome Clad Tapes

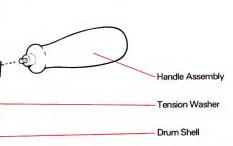


Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Frame Cat. No.	Handle Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.	Finger Cat. No.	Drum Shell Stud Cat. No.
1"	100′	4 Arm	11-100	17113	10033	11819	17880	17287	29365	17370
1"	200'	4 Arm	11-200	17122	10036	11819	17880	17287	29365	17370
1"	300′	4 Arm	11-300	17123	10037	11819	17880	17287	29365	17370

12 Series reels

For ½"/6mm Wide 150 & 200 Foot Lengths Fits Western Chrome Clad Tapes.

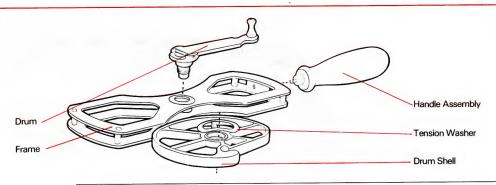




Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Frame Cat. No.	Handle Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.
1"	150′	4 Arm	12-150	17120	10034	11819	17880	17288
1"	200′	4 Arm	12-200	17120	10039	11819	17880	17288

31-100 Frame

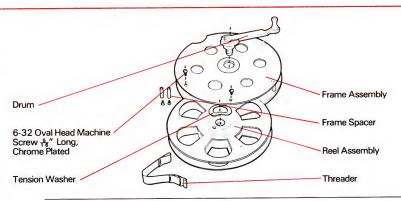
For 100 Foot Lengths Only



Tape Width	Tape Length	Frame Type	Reel No.	Drum Cat. No.	Frame Cat. No.	Handle Cat. No.	Tension Washer Cat. No.	Drum Shell Cat. No.
1" or 5"	100′	2 Arm	31-100	17119	10054	11819	17880	17296

1407 Reel

For §"/16mm Wide Woven Tape See catalog page no. 24 for complete unit and replacement lines.



Drum Cat. No.	Screw Cat. No.	Frame Cat. No.	Tension Washer Cat. No.	Reel Cat. No.	Frame Spacer Cat. No.	Strap Handle Cat. No.	Threader Cat. No.
17055	5285	10239	17881	10830	12510	11814	20007

Lufkin modules

For use with the Cooper Tool Wall. For additional information see the last 2 pages of this catalog.

TW-11 (45754)



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 16 lb/7.26 Kg. Contains: Two (2) Each W6110, Y826, Y8210, Y8212, 8010, 8012, 8312, 8316, 8325, 8425, 50, 100. TW-11A (45755) refill assortment only.

TW-12 (45756) Tape module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 22 lb/9.98 Kg. Contains: Two (2) Each W9210, W9212, W9312, W9316, Y210, Y212, Y12, Y16, Y25, Y116, Y125, HW223, HW226. TW-12A (45757) refill assortment only.

TW-13 (45758) Replacement blade module



Size: 16"/400mm x 13"/330m (C). Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each RY416, RY425, RW10, RW12, RW312, RW316, RY325. TW-13A (45759) refill assortment only.

TW-14 (45760) Wood rule module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 7 lb/3.17 Kg. Contains: Two (2) Each X46, 066, 066D, 460, 966, 636. TW-14A (45761) refill assortment only.

TW-15 (45832) Unilok



Size: 16"/400mm x 16"/400mm (B). Shipping weight: 10lb/4.53 Kg. Contains: Two (2) Each 8010, 8012, 8312, 8316, 8325, 8425. TW-15A (45833) refill assortment only.

TW-16 (45834) Ultralok tape module



Size: 16"/400mm x 16"/400mm (B). Shipping weight: 10 lb/4.53 Kg. Contains: Two (2) Each Y210, Y212, Y12, Y16, Y25, Y116, Y125. TW-16A (45835) refill assortment only.

TW-100 (45762) Measuring tool module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 7lb/3.17 Kg. Contains Two (2) Each W616, 8012, 8316, 8325, 066, 460. TW-100A (45763) refill assortment only.

PWI (45001) Pee-Wee tape display



Size: 9½"/2.41mm x 10"/2.54mm. Shipping weight: 20 lb/9.07 Kg. Contains: Four (4) Each W616, W618, W6110.

TW-301 (EXPORT) Tape module (Metric/English)

Size: 16"/400mm x 29"/740mm (A). Shipping weight: 18 lb/8.16 Kg. Contains: Two (2) Each Y23CME, Y25CME, Y34CME, Y35CME, Y38CME, Y822CME, Y823CME, Y824CME, Y835CME, HY20CME, HY30CME, HY230CME. TW-301A Tape Module Assortment.

TW-302 (EXPORT) Tape module (Metric)

Size: 16"/400mm x 29"/740mm (A). Shipping weight: 18 lb/8.16 Kg Contains: Two (2) Each Y23CM, Y25CM, Y34CM, Y35CM, Y38CM, Y822CM, Y823CM, Y824CM, Y835CM, HY20CM, HY30CM, HY230CM. TW-302A Tape Module Assortment.

TW-303 (EXPORT) Measuring tool module (Metric/English)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each Y23CME, Y35CME, Y38CME, Y824CME, Four (4) Each 062CME. TW-303A Measuring Tool Module Assortment.

TW-304 (EXPORT) Measuring tool module (Metric)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 7 lb/3.18 Kg. Contains: Two (2) Each Y23CM, Y35CM, Y38CM, Y824CM, Four (4) Each 062CM. TW-304A Measuring Tool Module Assortment.

TW-305 (EXPORT) Replacement blade module (Metric/English)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 5 lb/2.27 Kg. Contains: Two (2) Each RY22CME, RY23CME, RY25CME, RY34CME, RY35CME, RY38CME TW-305A Replacement Blade Module

Assortment.

TW-306 (EXPORT) Replacement blade module (Metric)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 5 lb/2.27 Kg. Contains: Two (2) Each RY22CM, RY23CM, RY25CM, RY34CM, RY35CM, RY38CM. TW-306A Replacement Blade Module Assortment.

TW-307 (EXPORT) Replacement blade module (Metric/English)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 6 lb/2.72 Kg. Contains: Four (4) Each RY23CME, RY24CME, RY35CME, RY38CME. TW-307A Replacement Blade Module Assortment.

TW-308 (EXPORT) Replacement blade module (Metric)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 6 lb/2.72 Kg. Contains: Four (4) Each RY23CM, RY24CM, RY35CM, RY38CM. TW-308A Replacement Blade Module Assortment.

TW-309 (EXPORT) Wood rule module (Metric)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 5 lb/2.27 Kg. Contains: Four (4) Each 062CM, 460CM, 966CM. TW-309A Wood Rule Module Assortment.

TW-310 (EXPORT) Wood rule module (Metric/English)

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 5 lb/2.27 Kg. Contains: Four (4) Each 062CME, 460CME, 966CM. TW-310A Wood Rule Module Assortment.

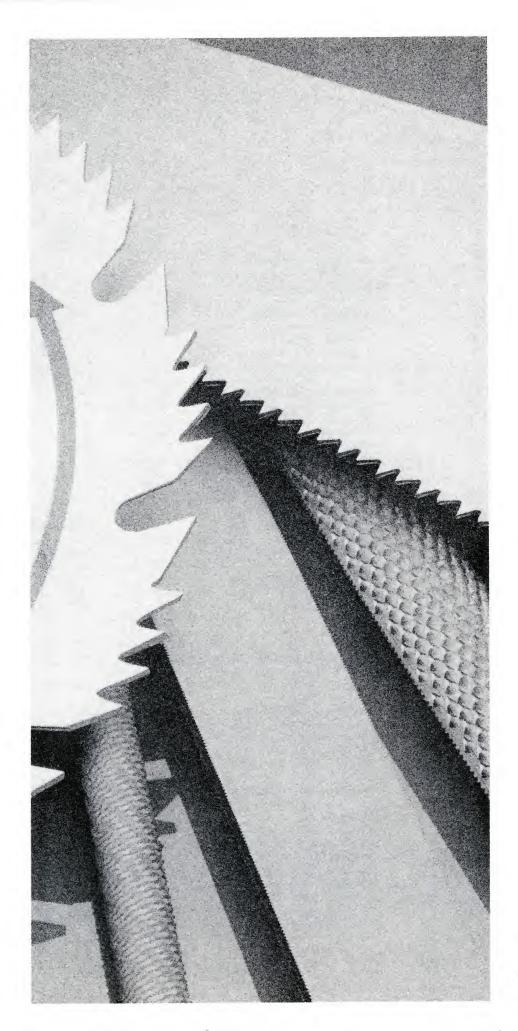
at. o.	Page	Cat. No.	Page	Cat. No.	Page	Cat. No.	Page	Cat. No.	Pa
62CM	L37	0C1294SME F/590	L19	146ME	L6	1294S ME		C1288 L26	6, L
62CMD	L37	OC1295S F/590	L 19	146P	L6	MEX F/		C1290S F/590	L
62CME	L37	OC1296S F/590	L 19	146PD	L6	1295S F/590	L20	C1290 \ S F/590	L
66	L36, L45	OC1296SME F/590	L19	150MM	L22	1296SME F/59		C1291S F/590 C1293S F/587	L
66D	L37, L45	0C1676D	L26	202 263P	L 18 L 12	1407 1407D	L24, L44 L24	C1293S F/590	L
66F 68	L36 L36	0C2276D 0C2276M	L26 L26	263TP	L12	1688	L6	C1293SD F/590	L
56 68F	L36	0C2276ME	L26	403	L24	1703	L23	C1293SME F/590	L
112P	L14	0C5100B	L30	403D	L24	1703D	L23	C1294S F/587 1	L
120CH	L14	0C5200B	L30	403ME	L24	1706	L23	C1294S F/590	L
120P	L14	OC5300B	L30	404L	L24	1706D	L23	C1294SD F/590 C1294SM F/590	L
120TP	L14	OC9100	L29	406	L24	1707	L23	C1296S F/590	Ĺ
125CH	L14	0C9100B 0C9100M	L29 L29	406D 406ME	L24 L24	1707D 2915MM/150M	L23 IM L20	C1296SME F/590	Ĺ
146P 146PD	L6 L6	0C9164M	L29	460	L38, L45	2915MM/590G		C1376D	L
263P	L12	0C9200B	L29	460CM	L38, L46	2920MM/150N		C1676D	L
403	L24	0C9300B	L29	460CME	L38, L46	2920MM/5900	SM L20	C2276D	L
103D	L24	0C9328M	L29	460F	L38	3176ME	L6	C2276M	L
103ME	L24	0H403	L24	524	L38	6810	L5	C2276ME C2730MM	L
104L	L24	0H403D	L24	552	L32 L34	7112ME	L40	C2730MME	L
406 406D	L24	0H406	L24 L24	576 576A	L34	7122 7127	L39 L39	C2750MM	Ĺ
106D 106ME	L24 L24	0H406D 0H433	L24 L12	576B	L34	7127 7132	L39	C2750MME	Ĺ
03 '03	L24 L23	0H436	L 12	576D	L34	7133	L39	C2910MM/150MM	
'03D	L23	0HC253	L11	576E	L34	7134	L39	C2910MM/590GM	
06	L23	OHC256	L11	576F	L34	7135	L39	C2910MME/590GN	
06D	L23	0HW50	L13	576G	L34	7142	L40	C2915MM/150MM	
290S F/590		0HW100	L13	577B	L35	7144	L40	C2915MM/590GM	
291S F/590	L20	0HW223	L13	577C	L35 L35	7146	L40	C2916MME/590GN C2920MM/150MM	
293S F/590	L20	0HW223D 0HW226	L13 L13	577D 577K	L35 L35	7148 7149	L40 L40	C2920MM/590GM	
293SME MEX F	7/590 L20	0HW226D	L13	577M	L35	7165	L40	C2920MME/590GI	
294SME	7590 L20	0HW220B	L 13	577P	L35	7166	L40	C2930MM/150MM	
MEX F	7/590 L20	0S1293 F/590	L20	577R	L35	7170	L40	C2930MM/590GM	
295S F/590		0Y50	L13	577T	L35	7171	L40	C2930MME/590GN	
96SM F/59		0Y100	L13	578	L35	7172	L40	C5030MB	- 1
296SME F/5		1P	L14	578A	L35	8010	L4, L45	C5050MB	L
107	L24		, L44	578B	L35 L35	8012	L4, L45	C50100MB C9030MB	L
407D	L24		, L44	578C	L26, L33	8312	L4, L45 L4, L45	C9050MB	i
707 707D	L23 L23		, L44	579 580	L20, L33	8316 8325	L4, L45 L4, L45	C9100B	Ĺ
300B	L31	12-150 L26,L28 12-200 L28	, L44	580E	L33	8425	L4, L45	C9100MB	L
066A	L30	31-100L30,L32,L43		580F	L33	427257	L3	C9200B	L
100B	L30	31-200 L30, L31		580H	L33	427277	L3	C9210	
100M	L30	31-300 L30, L3		580T	L26, L32	427279	L3	C9210M	
165T	L31	31-500 L31	, L43	583	L33	427331	L3	C9212 C9212X	
200B	L30	34V	L39	583C	L33	427333	L3	C9300B	ι
300B	L30	34¼ V	L39	584 586	L32 L33	427335 427605	L3 L3	C9312	
500-30G 500B	L30 L30	41-200	L43	586D	L33	427605	L3	CD2730DMM	
2CM	L46	41-300 L31, L32 41-500	L43	587½	L22	427609	L3	CD2730MM	
2CME	L46	50	L45	588	L21	427613	L3	CD2730MME	- 1
100	L30		, L43	590	L19, L21	427615	L3	CD2750MM	
100A	L30	60-12	L41	590A	L21	427617	L3	H403 H403D	
100B	L30	60-24	L41	590G	L21	C2CME	L3	H403D H406	
200B	L30	60M-300	L42	590GM	L21	C2M	L3	H406D	
300B	L30	60M-600	L42	593	L34 L34	C3CME	L3	H433	
120TP 213	L14 L11	61-200 L 30, L 31, L 32		596 596A	L34	C3M	L3	H436	
213C	L11	61-300 L30,L32 61-500 L30,L32		597	L34	C106PM C106TPM	L14, L17 L14, L17	H1415M	
213CX	L11	62-1 Ft.	L41	599/Pad	L22	C110TPM	L14, L17	H1415ME	
213D	L11	62-2 Ft.	L41	599/Wiper	L22	C120TP	L14, L17	H1430M	
216	L11	62-3 Ft.	L41	626	L37	C212X	L1	H1430ME	
216₺/BLK		62-4 Ft.	L41	636	L37, L45	C213	L11	H1450M	
216D	L11	62-6 Ft.	L41	646	L38	C213C	L11	H1450ME	
217	L11	62M-1M	L42	688	L5	C213CX	L11	HC215MM HC215MME	
1276 1276D (001	L27 1376D) L27	62M-2M	L42	703	L23	C213D	L11	HC216D	
1276D (UC 1 1278	L27	62M-300	L42	703D 706	L23 L23	C216	L11	HC220MM	
1278D	L27	62M-600 81-50 L28	L42 3, L43	706 706D	L23	C216 → /BLK	L11	HC220MME	
1279D	L27		s, L43	966	L37, L45	C216D C216DM	L11 L11	HC230MM	
1286	L26		3, L43	966CM	L37, L46	C216DW	L11	HC230MME	
1286D	L26	86	L38	1066D	L37	C579M	L26	HC253	
1288	L26		3, L43	1066CMD	L37	C926	L3	HC256	2 1
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RC292CMME		RY22CM L2,L3,I		W312D (12D)	L1	Y823CME	L4, L46		
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/59				W606P	L5	Y834CME	L4		



(E)



CooperTools

Nicholson

The Nicholson® File Company, formed in 1864, became the first successful manufacturer of machine-made files. Today, the wide Nicholson® range has increased in scope and size and includes files, rasps, circular saw blades, bandsaw blades, and handsaws, manufactured to uncompromising standards of quality.

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Overall length

Note:

N/S No. is an abbreviation for NIDA/SIDA Number.

The following manuals and instruction leaflets are available. Please ask your local distributor or Cooper representative for copies.

- The Guide to Files and Filing
- Facts about Rotary Files and Burs
- Saw Guide
- Bandsaws—General Recommendations

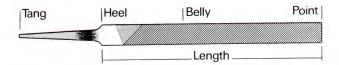
Please order by using catalog numbers or when shown NIDA/SIDA Numbers. Each file has been assigned a catalog number to expedite the entry and shipment of your order. To facilitate order processing, please determine catalog number in the following manner:—8" Mill Bastard Nicholson Brand 08497.

Nicholson Files and Rasps

The following information is included to help you make the right choice of file to meet your particular requirements.

File Terminology:

Length



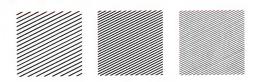
Length is measured exclusive of tang, from point to heel. Desired stroke length, type of material and its size will determine length required.

Shape



Area to be filed will determine specific cross section-round, square, knife, flat, etc.-to be used.

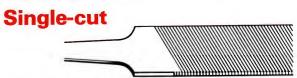
Coarseness



Work to be accomplished, roughing or finishing, will determine type of teeth and coarseness for each application. Most files are available with 3 grades of cut: bastard-cut, second-cut and smooth-cut.

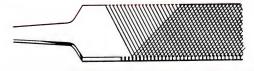
The degree of coarseness is greater in longer files, but differences between bastard, second cut and smooth are proportionate.

Kinds of teeth



Single set of parallel, diagonal rows of teeth. Single-cut files are often used with light pressure to produce a smooth surface finish or to put a keen edge on knives, shears or saws.

Double-cut



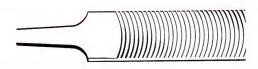
Two sets of diagonal rows of teeth. The second set of teeth is cut in the opposite diagonal direction and on top of the first set. The first set of teeth is known as the overcut while the second is called the upcut. The upcut is finer than the overcut. The double-cut file is used with heavier pressure than the single-cut and removes material faster from the workpiece.

Rasp-cut



Series of individual teeth which are formed by a single-pointed tool. This produces a rough cut that is used primarily on wood, hooves, aluminum and lead.

Curved-cut



Teeth arranged in curved contours across the file face. The curved-cut file is normally used in automotive body shops for smoothing body panels.

American pattern files

Aluminum files - type "A" flat

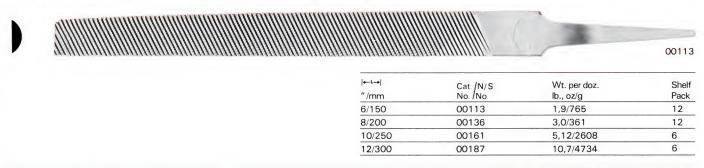


Type "A" aluminum files have a special tooth construction which experience shows to be very effective in eliminating clogging. A smooth finish can be readily obtained by using a shearing cut toward the left.

Made in flat and half round shapes. Double-cut. All sizes have exactly the same cut, that is, the same number of teeth per inch. Half rounds have narrow points in 6"/150mm, 8"/200mm and 10"/250mm sizes only.

← L→	Cat /N/S	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No.	lb., oz/g	Pack
6/150	00001	1,3/539	12
8/200	00024	3,0/1361	12
10/250	00047	7,4/3289	6
12/300	00070	11,2/5046	6

Aluminum files - type "A" half round



Auger bit files



Auger bit files are designed to restore the original sharpness to the cutting edges of bits. One end of file has its edges left safe or uncut while the other end has safe sides. This construction prevents damage to surfaces adjacent to those being filed. Made in 7-inch length only.

	Wt. per doz.	Shelf
No./No.	lb., oz/g	Pack
00258	0,11/312	12
	Cat. /N/S No. /No. 00258	

Bandsaw taper files with narrow edges



When ordering special narrow edge bandsaw files be sure to determine width and order by appropriate catalog number.

Bandsaw tape	er No. 63		
← L→l	Cat. /N/S	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No.	lb., oz/g	Pack
6/150	00498	1,15/879	12
Bandsaw tape	er slim No. 64		
← L →	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No./No	lb., oz/g	Pack
6/150	00526	1,7/652	12

Bodifiles

A line of Bodifiles is available for those who work on automobile bodies, particularly in blending solder with sheet steel.

All "Flat" files - teeth on both sides.

All "Flat Bent" files - teeth on convex side only.

All "Flat Bent" files have tangs offset for knuckle clearance in filing large sheet metal surfaces.

For other Bodifiles see superior milled tooth section.

Code No.	Teeth Per Inch	Size	Cat. /N/S No. /No.	Band "R" "/mm	Wt. per doz. lb., oz/g
50-204 D/C	10	1 ¹¹ / ₃₂ " x ⁵ / ₁₈ " 14 Flat Bent	03103		16,10/7541
50-210 D/C	10	1 1 1 2 1 2 1 5 1 1 4 Flat Bent	03129	50"/1271	16,10/7541
50-404 D/C*	20	1 ¹¹ / ₃₂ " x ⁵ / ₁₆ " 14 Flat Bent	03184	196"/4981	16,10/7541
50-407 D/C	13	1 ¹¹ / ₃₂ " x ⁵ / ₁₆ " 14 Flat Bent	03212	80"/2033	16,10/7541
50-415B S/C**	11	111/32" x 15/6" 14 Flat Bent	03271	80"/2033	16,10/7541

D/C = Double-Cut S/C = Single-Cut

Cabinet files



Made for use by cabinetmakers and woodworkers. Cabinet files are half round in section. Their radius is larger than that of regular half round files and they are thinner. Their teeth are slightly finer than those of the wood files.

[←L→] "/mm	Cat./N/S No./No.	Wt. per doz. lb., oz/g	Shelf Pack
8/200	01232	3,00/1361	12
10/250	01260	5,07/2466	6

Cantsaw files





For sharpening crosscut saws with "M" teeth, for circular saws and for saw teeth with less than 60° angle. Same number of teeth per inch as mill bastard files of equivalent length. Single-cut. Edges set and cut. Regularly supplied with cut back. "Cut backs" furnished unless "safe backs" definitely ordered.

← L→	Cat /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
6/150	01327	1,07/652	12
8/200	01387	3,03/1446	12
10/250	01418	5,09/2523	12
Safe back			
←- L →	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
6/150	01448	1,07/652	12

Chain saw files - Round smooth



01964

01327

03129

This new round smooth chain saw file is a product of extensive research and development in the engineering laboratories of Nicholson.

Field tests by chain saw users and competitive tests by many leading chain saw manufacturers prove that the new round smooth chain saw file is the smoothest-feeling, fastest-cutting and best-finished.

Code No.	Cat./N/S No./No.	←-⊾→ ″/mm	<u>∓</u> ✓ /mm	Wt. per doz. lb., oz/g	Shelf Pack
83	01753	8/200	$\frac{3}{16}/4.76$	0,13/369	12
835	01876	8/200	$\frac{7}{32}$ /5.55	1,02/510	12
84	01964	8/200	1/6.35	1,06/624	12
85	02082	8/200	5 ₆ /7.93	2,03/992	12
86	02150	8/200	₹/9.52	3,00/1361	12
610	01576	6/150	½/3.17	0,07/198	12
620	01609	6/150	\$5/3.96	0,08/227	12

^{*} For fine finishing steel surfaces. All others used on steel or body solder or both together.

^{* *} With rounded edges.

Chain saw files-flat

1



Code number together with words "Flat Chain Saw Files" are stamped on tang for identification. For cutter-raker type (2 round edges).

Code	Cat. /N/S	← L →	Wt. per doz.	Shelf
No.	Cat. /N/S No. /No.	"/mm	lb., oz/g	Pack
18	02215	8/200	2,14/1304	12

Crosscut-Great American





Originally made for sharpening saws of Great American type. Now used for sharpening varieties of crosscut saws. Same number of teeth per inch as mill bastard files of same lengths. Rounded backs of files used to deepen rounded gullets of saw teeth. Single-cut. Rounded back and thin edge are also cut.

←└→ "/mm	Cat /N/S No /No.	Wt. per doz. lb., oz/g	Shelf Pack
8/200	02435	3,04/1474	12
10/250	02465	6,04/2835	12

Doctor blade files



Doctor blade files are made for filing doctor blades in the clothprinting industry. Made in one length only—14" without tang parallel in width and thickness. Coarse Cut only.

← L →	Cat. /N/S	Wt. per doz.	Shelf
" /mm	No. /No.	lb., oz/g	Pack
14/356	02828	16,01/7286	6

Double Ender Files





Single-cut on sides and edges from points to center giving filer full use of file. Six handles supplied with each dozen Double Ender Files.

Wt. per doz. lb., oz/g	Shelf Pack
0.11/312	12
0.13/369	12
1.04/567	12
2.00/907	12
2.06/1077	12
	lb., oz/g 0.11/312 0.13/369 1.04/567 2.00/907

Flat files



03467

Flat files are used by machinists, machinery builders, ship and engine builders, repair men and others who require rapid removal of metal. They are rectangular in cross section and taper slightly towards point in both width and thickness. Double-cut on both sides, single-cut on both edges.

+-L->	Catalo	og & Nida/Sida Ni	umbers	Wt. per doz.	Shelf
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
4/114	03367	_	03434	0,09/255	12
6/150	03467	03500	03533	1,09/709	12
8/200	03566	03599	03632	3,12/3261	12
10/250	03665	03698	03731	7,03/3261	6
12/300	03764	03797	03830	11,04/5103	6
14/356	03863	03896	03929	16,10/7541	6
16/400	03980	_	_	24,02/10943	6
10,100					

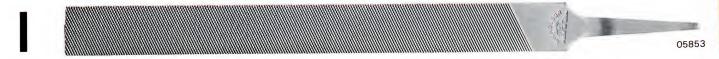
Half round files



Rounded on one side. Flat on the other. Used on concave and convex as well as flat surfaces. Backs of all half round bastard files are double-cut. The backs of all half round second cut files longer than 6 inches are double-cut, the 4 and 6 inch files are single-cut. The backs of all half round smooth files are single-cut. The flat sides of all half round files are double-cut.

← L → "/mm	Catalo Bastard	og & Nida/Sida Ni Second Cut	umbers Smooth	Wt. per doz.	Shelf Pack
4/114	04695	04729	04762	0,10/284	12
6/150	04795	04828	04861	1,09/709	12
8/200	04896	04927	04960	3,05/1503	12
10/250	04995	05026	05059	6,01/2750	6
12/300	05094	05125	05158	10,08/4763	6
14/356	05194	05225	05258	16,04/7371	6
16/400	05307	_	_	23,14/10830	6

Hand files



Similar to regular flat files but taper in thickness only. Double-cut. One edge safe or uncut. Same coarseness as flat files of corresponding lengths.

←- L-→	Catalo	og & Nida/Sida Nu	umbers	Wt. per doz.	Shelf
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
6/150	_	_	05804	1,12/794	12
8/200	05853	05886	05919	3,14/1758	12
10/250	05968	06001	06034	7,08/3402	6
12/300	06084	06117	_	11,06/7768	6

Handy file



This gives the user a combination file: single-cut on one side for sharpening edged tools and smoothing metal surfaces, double-cut on other side for rapid removal of metal. One edge is "cut" and the other is "safe" or "uncut." Convenient "hang up" hole. Length measured exclusive of handle. Available carded only.

← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
8/200	06601	5,10/2268	6

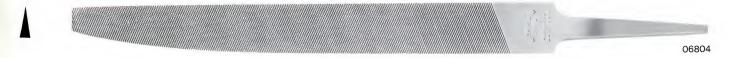
Home and garden file



Sharpens knives, scissors and garden tools. Sharpens rotary mower blades to knife-like edge and smooths nicks that tear grass. Files come skin-packed for pegboard display. Shipped in its own corrugated merchandiser for retail display. Available carded only.

← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
10/250	11488	4,08/2041	12

Knife files



Knife files are of knife blade section and used principally by tool and die makers on work having acute angles. All double-cut on sides and single-cut on sharp edge. Knife files are regularly supplied with safe backs, unless cut backs are specified.

←-L →	Catalog & Nida/Sida Numbers		Wt. per doz.	Shelf	
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
4/114	06711	06742	06773	0,06/170	12
6/150	06804	06836	06867	1,03/539	12
8/200	06898	06930	06961	2,08/1134	12
10/250	06992	07023	07054	4,10/2098	12

Long angle lathe files



Long angle lathe files are rapid, free cutting files, designed for lathe filing. Cut faster than regular mill files and leave a smoother finish. Made on flat blanks in bastard cut. Edges are safe or uncut to protect the shoulder or dog. Identified by words "Flat Long Angle" on file. All long angle files are single-cut.

	Cat. /N/S	Wt. per doz.	Shelf
"/mm	Cat./N/S No./No.	lb., oz/g	Pack
10/250	07657	7,03/3260	6
12/300	07688	11,04/5103	6
14/356	07719	16,10/7541	6

Magicut® files





Enlarged close-up shows the unique pattern of narrow chip breakers created by steep and angled serrations. This maximum cutting surface design gives rapid removal and smoother finish. "Magicut" is a machinist's all purpose file, which removes stock rapidly and leaves a smooth finish at the same time, thus eliminating the need for extra filing strokes.

← " /mm	Cat. /N/S No. /No.	Wt. per doz. lb., oz/g	Shelf Pack
8/200	07894	3,12/1701	12
10/250	07917	3,07/3260	6
12/303	07941	11,4/5103	6
14/356	07965	16,10/7541	6

08354

For sharpening mill or circular saws. Also for draw-filing and finishing metals. All sizes tapered slightly in width, 12", 14" and 16" slightly in thickness for about one-third of length. Two square edges. Single-cut on sides and edges.

← L→	Catalo	g & Nida/Sida Nu		Wt. per doz.	Shelf
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
4/113	08243	_	08306	0,08/227	12
6/150	08354	08385	08416	1,03/539	12
8/200	08497	08529	08560	2,12/1247	12
10/250	08642	08673	08704	5,07/2466	12
12/303	08737	08768	08799	9.01/4111	6
14/356	08832	_	08894	14,00/6350	6
16/400	08925	_	_	21,00/9526	6

Mill files - 1 and 2 round edges

09099

Same as regular mill files except that they have one or two round edges. Bastard cut, single-cut on sides and edges. Round edges are used where rounding gullets are preferred, as compared to sharp corners or squared gullets.

One	round	edge	bastard	cut

←└→ "/mm	Cat./N/S No./No.	Wt. per doz. lb., oz/g	Shelf Pack
8/200	09099	2,13/1276	12
10/250	09179	5,01/2296	12

Two round edge bastard cut

← └→ "/mm	Cat./N/S No./No.	Wt. per doz. lb., oz/g	Shelf Pack
8/200	09389	2,11/1219	12
10/280	09469	5,01/2296	12

Mill western cut files





Mill western cut files are available for those who desire fast cutting mill files. They are slightly coarser than mill bastard.

← L→ "/mm	Cat. /N/S No. /No	Wt. per doz. lb., oz/g	Shelf Pack
8/200	09641	2,12/1247	12
10/250	09658	5,07/2466	12
12/303	09677	9,01/4111	6

Pillar files



Pillar files have a rectangular cross section. They are like hand files in general shape but are narrower. They have one edge safe or uncut. Used mostly by machinists for filing slots and keyways. Available in bastard cut only.

← L→	Cat /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
8/200	11118	3,11/1673	12

Round Files

11716

12967

Principal use is to file circular openings or concave surfaces. Tapered slightly towards point. All 4", 6", 8", 10" files are single-cut, 12" bastard and second cut are double-cut. 12" smooth is single-cut and 14" bastard is double-cut.

← "/mm	Dia. "/mm	Catalog Bastard	& Nida/Sida N Second Cut	umbers Smooth	Wt. per doz. lb., oz/g	Shelf Pack
4/113	_	11526	11559	11592	0,04/113	12
6/150	_	11716	11748	11781	0,14/397	12
8/200	_	11904	11936	11969	1,06/624	12
10/250	3"/10mm	12019	12051	12084	3,03/1446	12
12/303	1"/13mm	12134	12166	12199	6,13/3090	6
14/356	§″/16mm	12248	_	_	11,15/5415	6

Square files

For filing slots, keyways and general surface filing. Larger sizes frequently preferred to corresponding flat files because of heavier section and four filing surfaces. Tapered slightly towards point. Double-cut.

← L→	Dia.	Catalog	a & Nida/Sida N	lumbers	Wt. per doz.	Shelf
"/mm	"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
4/113	<u>5</u> ″/4mm	12790	12824	12857	0,04/113	12
6/150	1"/6mm	12967	13000	13033	1,01/482	12
8/200	5″/8mm	13081	13114	13147	1,15/879	12
10/250	¾″/10mm	13196	13229	13262	3,14/1758	12
12/303	½"/13mm	13310	13343	13376	8,06/3799	6
14/356	§"/16mm	13425	-	_	14,12/6691	6

Taper (Triangular) saw files

Triangle saw files are made for filing all types of saws with 60° angle teeth. Single-cut. Edges set and cut for filing gullets between saw teeth.

In filing handsaws, it is important to select the right file. In general, the table lists the suggested size and type of file that will give the best results.

Number of Points	Files Recommended	
5	7"/178mm Taper Regular	
5 1	7"/178mm Taper Regular	
6	7" /178mm or 8" /200mm Slim	
7	6"/150mm or 7"/178mm Slim	
8	6"/150mm Slim 7"/178mm Extra Slim 8"/200mm Double Extra Slim	
9	6"/150mm Extra Slim 7"/178 mm Double Extra Slim	
10	5"/127mm or 6"/150mm Extra Slim	
11	5"/127mm Extra Slim 6"/150mm Double Extra Slim	
12	5"/127mm Extra Slim	
13,14	5"/127mm Double Extra Slim	
15,16	5"/127mm Double Extra Slim	

Taper files - regular



3.5

	Cat./N/S	Wt. per doz.	Shelf
"/mm	Cat./N/S No./No.	lb., oz/g	Pack
6/150	13807	2,00/907	12
7/178	13841	2,15/1332	12
8/200	13875	4,05/1956	12
10/250	13930	7,08/3402	12

Taper files - heavy



14032

←-L→ "/mm	Cat./N/S No./No	Wt. per doz. lb., oz/g	Shelf Pack
5/140	14015		12
6/150	14032	_	12

Taper files – slim

				14224
	← L→	Cat /N/S	Wt. per doz.	Shelf
	"/mm	No No.	lb., oz/g	Pack
	4/113	14106	0,06/170	12
•	5/140	14162	0,09/255	12
	6/150	14224	1,01/482	12
	7/178	14255	1,11/765	12
	8/200	14290	2,10/1191	12
	10/250	14341	5,03/2353	12

Taper files – extra slim

		**	14665
←- k→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No./No	lb., oz/g	Pack
4/113	14547	0,04/113	12
5/140	14599	0,06/170	12
6/150	14665	0,11/312	12
7/178	14698	1,03/539	12
8/200	14729	1,14/851	12

Taper files – double extra slim

			15024
←└→	Cat./N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
5/140	14992	0,05/142	12
6/150	15024	0,09/255	12
7/178	15056	0,12/340	12
8/200	15087	1,01/482	12

Taper files – double-cut saw files (M.F.)



Designed and recommended primarily for use in saw filing machines.

	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
6/150	15334	2,00/907	12
Taper slim de	ouble-cut M.F.		
← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
6/150	15395	1,01/482	12
7/178	15418	1,11/765	12
Taper extra s	lim double-cut M.F.		
← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
6/150	15460	0,11/312	12
7/178	15481	1,03/539	12
Taper double	extra slim double-cu	t M.F.	
← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
6/150	15524	0,09/255	12
	15545	0,12/340	12

Three square files



15925

Three square files are triangular in cross section, like tapers, but are double-cut and have fairly sharp corners that are slightly set and cut. These files are for general use by machinists for filing internal angles more acute than the right angle, for clearing out square corners and filing taps and cutters. Grading of cuts according to coarseness is same as Square File.

	Catalo	Catalog & Nida/Sida Numbers			Shelf
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
6/150	15925	15958	15991	1,15/879	12
8/200	16036	16069	16102	4,4/1928	12
10/250	16147	16180	16213	7,8/3402	12

Tungsten point files



02373

Tungsten point files are for dressing distributor points that are tipped with tungsten, iridium and similar metals. Files are $5\frac{1}{4}$ inches overall and double-cut. Chisel tip of file enters slots or gaps easily. Approximate size $\frac{15}{16}$ "/8mm x .044"/1.10mm.

← L → "/mm	Cat./N/S No./No.	Wt. per doz. lb., oz/g	Shelf Pack
5½/133	02373	2,8/1134	12 Boxed
51/133	02381	3.8/1588	12 Carded

Veneer knife files



10787

These are actually mill blunt bastard two round edge files with teeth especially designed for sharpening veneer knives.

← L→	Cat./N/S No./No.	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
8/200	10787	3,0/1361	12
10/250	10799	5,8/2495	12

Warding files



16663

Warding files are rectangular in section and used principally by locksmiths in repairing or filing ward notches in keys. Also suited for use in narrow spaces where other files will not fit. All double-cut on sides, single-cut on edges.

← -L→	Catalo	og & Nida/Sida Nu	ımbers	Wt. per doz.	Shelf
"/mm	Bastard	Second Cut	Smooth	lb., oz/g	Pack
4/114	16507	16540	16573	0,5/142	12
6/150	16663	16696	16729	0,13/369	12
8/200	16761	16794	16827	1,10/737	12
10/250	16859	16891	_	_	12

Web saw files





Web saw files are for filing pulpwood or web saws. Because of their shape, they are specially suited for filing saws that have cutting teeth of less than 60° angle or wherever it is desirable to file each bevel of the tooth separately.

←-L-→	Cat /N/S	Wt. per doz.	Shelf
"/mm	Cat /N/S No. /No.	lb., oz/g	Pack
6/150	17037	3,0/1361	12

Wood files (Coarse) - half round





Wood files are made in the same sections and size as half round files. However, they have especially coarse teeth, fitting them for use on wood.

←	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
10/250	17505	6,1/2750	6

Cabinet rasps





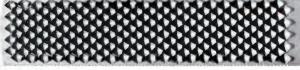
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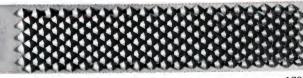
Cabinet rasps are for use by cabinetmakers and woodworkers. The curved side of these rasps is similar to that of half round rasps but has a larger radius. Single-cut on edges.

	Catalog & Nida/S	ida Numbers		
← -L→	Regular	Constitution	Wt. per doz.	Shelf
<u>" /mm</u>	(Second Cut)	Smooth	lb., oz/g	Pack
8/200	17615	_	3,0/1361	12
10/250	17683	17718	5,7/2466	6
12/300	17751	17786	9,5/4224	6

Horse rasps – plain $\frac{1}{2}$ file







Horse rasps are made in two different types, plain and tanged. Plain horse rasps are double-ended; they have rasp teeth on one side and file teeth on the other. Made in regular, slim and a new pattern called 18" plater's double-ended horse rasp. Many farriers prefer this thin fine-toothed rasp for shoeing racetrack and riding horses.

Regular			17873
← L→	Cat./N/S	Wt. per doz.	Shelf
"/mm	Cat./N/S No./No.	lb., oz/g	Pack
12/300	17873	13,15/6322	6
14/350	17903	19,10/8902	6
Slim plater's o	double-ended		
18/460	18005	28.0/12701	6

Horse rasps - tanged



Tanged horse rasps are the same as plain horse rasps in tooth construction. They have the rasp teeth on one side and file teeth on the other. Single-cut on edges.

← L→	Cat./N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
14/350	18057	26,8/12020	6

Horse rasps - tanged plater's special



Plater's special horse rasps have rasp teeth on one side with file teeth on the opposite side. Both sides are safe $\frac{7}{8}$ "/22mm at point. Rasp cut is six teeth per row. (All other horse rasps have five teeth per row). Primarily for race track and other horses using light shoes. Plater's special horse rasps are sharper than regular horse rasps.

Plater's special double extra thin

← L→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
14/350	18157	16,6/7428	6

Magicut® plater's special horse rasp



Tooth design is cut deeper to last longer and cut much faster than conventional horse rasps. Rasp cut is six teeth per row. Single-cut on edges. Opposite side has Nicholson's* unique Magicut file pattern of narrow chip breakers created by steep and angled serrations. This maximum cutting surface design gives rapid removal and smoother finish.

←└→	Cat /N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
14/350	18130	15,12/7144	6

American Pattern Rasps

Pattern maker's cabinet rasps



Cut edge	s			
Code No.	Size and Kind	Cat./N/S No./No.	Wt. per doz. lb., oz/g	Shelf Pack
49-10"	Pattern maker's cabinet rasps 2nd Cut, Narrow pattern	18846	3,10/1644	6
50-10"	Pattern maker's cabinet rasps Smooth, Narrow pattern	18861	3,06/1531	6

4-in-Hand®(formerly shoe rasp)



This versatile tool is really four files in one - with a file section and a rasp section on the flat side and a file section and a rasp section on the half round side. Every homeowner, garage man, boat builder and mechanic needs one.

←L→	Cat /N/S	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No.	lb., oz/g	Pack
8/200	18924	4,02/1871	6
10/250	18962	7,09/3430	6

Wood rasps - flat bastard



←	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
10/250	19136	7,08/3402	6

Wood rasps - half round bastard



← L→	Cat./N/S	Wt. per doz.	Shelf
"/mm	No./No.	lb., oz/g	Pack
6/150	19361	1,08/680	12
8/200	19394	3,07/1559	12
10/250	19427	6,08/2948	6
12/300	19460	10.08/4763	6
14/350	19493	16,15/7683	6

Wood rasps round bastard



Round wood rasps are used for the same purpose as regular wood rasps in places for which their shapes make them particularly effective. Made from steel of the same size as round files.

-L-	Dia.	Cat. /N/S	Wt. per doz.	Shelf
"/mm	"/mm	No. No.	lb., oz/g	Pack
10/250	₹/10mm	19875	3,04/1474	12

Nicholson® X.F.® Files Swiss Pattern

Nicholson X.F. Swiss pattern files are made to more exacting measurements than American pattern files. X.F. Swiss pattern files are made in much finer cuts, which vary from No. 00, which is the coarsest, to No. 6, the finest.

X.F. Swiss pattern files are used by tool and die makers, delicate instrument parts finishers, jewelers, model makers, and home craftsmen. In short, everyone who does superfine precision filing will have many uses for X.F. Swiss pattern files.

Barrette files



Barrette files are flat on one side. The backs are beveled on the edges as indicated by the cross section. The included angle is 33 degrees. The wide flat sides are double-cut. Back and beveled edges are "safe" or uncut.

L	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No. /No.	No.	lb., oz/g	Pack
3/76	35001	00	0,03/85	12
3/76	35006	0	0,03/85	12
4/101	35025	00	0,09/255	12
4/101	35031	0	0,09/255	12
4/101	35037	1	0,09/255	12
4/101	35043	2	0,09/255	12
6/150	35055	00	1,05/595	12
6/150	35061	0	1,05/595	12
6/150	35073	2	1,05/595	12
8/200	35091	0	2,14/1304	6
8/200	35099	2	2,14/1304	6

Barrette files - hot die



Same as regular Barrette files except with thinner point. 3-inch and 4-inch have an approximate point thickness of .040"/1.10mm.

	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No	No.	lb., oz/g	Pack
3/76	35108	00	0,03/85	12
3/76	35111	0	0,03/85	12
4/101	35114	00	0,09/255	12
4/101	35117	0	0,09/255	12

3½"/83mm Bench filing machine files



Bench filing machine files are designed for use in machines for filing dies and patterns. Direction of cutting stroke is towards the shank. They are $3\frac{1}{4}$ "/83mm inches overall and have $\frac{1}{4}$ "/6mm round shanks. Made in seven different shapes.

Description	Cat. /N/S No. /No.	Size "/mm x "/mm	Cut	Wt. per doz. lb., oz/g	Shelf Pack
Round	35283	¼"/6mm	00	0,10/284	12
Half Round	35289	1"/6mm x 9 "/13.57	00	0,06/170	12
Pillar	35295	7/2"/15.55 x 1/3"/3mm	00	0,07/198	12
Knife	35307	¼"/6mm x ¼"/3mm	00	0,06/170	12
Square	35313	3/4.76mm	00	0,08/227	12
Three Square	35319	⁷ / ₃₂ "/5.55mm	00	0,07/198	12
Foualing	35331		00	0.07/198	12

Corrugating files, hand

CV CV

Hand corrugating files are made for corrugating the edges of barber's shears and other edged tools. Made of rectangular and double-cut. They are designed to corrugate the blade when stroked straight across or, in other words, at right angles to the blade.

← ^L →	Cat. /N/S	Cut	Wt. per doz.	Shelf
" /mm	No. /No.	No.	lb., oz/g	Pack
6/150	36877	2	2,05/1049	12

Corrugating files, pillar R.H.



Pillar right hand corrugating files are made for corrugating the edges of barber's shears and other edged tools. Used by placing the file on the shear blade as close as possible to the pivot point and stroked with a motion forward and to the right, allowing the file to "Track" and form corrugations.

←	Cat./N/S	Cut	Wt. per doz.	Shelf
"/mm	No./No.	No.	lb., oz/g	Pack
6/150	40436	2	1,10/737	12

Crochet files



Crochet files are flat with two, well-rounded edges. They taper in both width and thickness. Double-cut on flat sides and both edges.

← "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
4/101	35612	2	0,07/198	12
6/150	35632	0	1,01/482	12
8/200	35660	0	2,07/1106	6
8/200	35668	2	2,07/1814	6

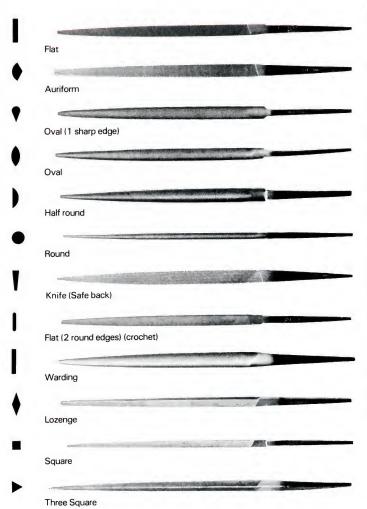
Crossing files



Crossing files are made of double circular section, one side having the same radius as the half file, the other side having a flatter curve or larger radius. Crossing files taper to a point in both width and thickness. Double-cut on both sides.

← "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
4/101	35719	2	0,10/284	12
6/150	35739	0	1,04/567	12
6/150	35748	2	1,04/567	12
8/200	35778	0	4,00/1814	6

$3\frac{1}{2}$ "/89mm Die sinker's files



 $3\frac{1}{2}$ "/89mm long. Designed for use by die sinkers in dressing and finishing dies of all kinds. Made in twelve shapes. Assorted sets of files are now supplied in plastic pouches.

Shape	Size "/mm x "/mm	Cat./N/S No./No.	Cut	Wt. per doz. oz/g	Shelf Pack
	Assorted set	35807 35812	0 2	4/113 4/113	12 12
Flat	$\frac{7}{32}$ /5.55 x $\frac{7}{64}$ /2.77	35817 35823	0 2	4/113 4/113	12 12
Auriform	$\frac{17}{64}$ /6.74 × $\frac{7}{64}$ /2.77	35829 35835	0	4/113 4/113	12 12
Oval (1 sharp edge)	$\frac{17}{64}/6.74 \times \frac{7}{64}/2.77$	35841 35847	0 2	4/113 4/113	12 12
Oval	$\frac{17}{64}/6.74 \times \frac{7}{64}/2.77$	35853 35859	0 2	4/113 4/113	12 12
Half round	$\frac{1}{4}/6.35 \times \frac{3}{32}/2.38$	35865 35871	0 2	4/113 4/113	12 12
Round	½/3.17	35877 35883	0 2	3/85 3/85	12 12
Knife (Safe back)	$\frac{1}{4}/6.35 \times \frac{5}{64}/1.98 \times \frac{1}{64}/0.39$	35889 35895	0 2	3/85 3/85	12 12
Flat (2 round edges) (crochet)	$\frac{9}{32}$ /7.14 x $\frac{7}{64}$ /2.77	35901 35907	0 2	5/141 5/141	12 12
Warding	$\frac{13}{64}/5.15 \times \frac{3}{32}/2.38$	35913 35919	0 2	4/113 4/113	12 12
Lozenge	$\frac{13}{64}$ /5.15 x $\frac{5}{32}$ /3.96	35925 35931	0 2	4/113 4/113	12 12
Square	½/3.17	35937 35943	0 2	3/85 3/85	12 12
Three Square	11/4.44	35949 35955	0 2	3/85 3/85	12 12

$6\frac{1}{2}$ "/163mm Die sinker's rifflers

Die sinker's rifflers are made in approximately $6\frac{1}{2}$ "/165mm lengths and in cuts 0, 2, and 4. Made in shapes as illustrated. Each riffler identified by number. Rifflers may be purchased in any quantity of each shape or in an assortment of one each of these 12 shapes.



Style	Cat./N/S No./No.	Cut No.	Wt. per doz. lb., oz/g
No.	35961	0	0,06/170
Assorted	35966	2	0,06/170
Assorted	35900	4	0,06/170
Assorted	35976	0	0,05/142
1	35982	2	0,05/142
1		4	0,05/142
1	35988	0	0,05/142
4	35994	2	0,05/142
4	36000	4	0,05/142
4	36006		
5	36012	0	0,05/142
5	36018	2	0,05/142
5	36024	4	0,05/142
6	36030	0	0,05/142
6	36036	2	0,05/142
6	36042	4	0,05/142
7	36048	0	0,05/142
7	36054	- 2	0,05/142
7	36060	4	0,05/142
8	36066	0	0,06/170
8	36072	2	0,06/170
8	36078	4	0,06/170
9	36084	0	0,06/170
9	36090	2	0,06/170
9	36096	4	0,06/170
11	36102	0	0,06/170
11	36108	2	0,06/170
11	36114	4	0,06/170
12	36120	0	0,06/170
12	36126	2	0,06/170
12	36132	4	0,06/170
15	36138	0	0,06/170
15	36144	2	0,06/170
15	36150	4	0,06/170
16	36156	0	0,06/170
16	36162	2	0,06/170
16	36168	4	0,06/170
18	36174	0	0,06/170
18	36180	2	0,06/170
18	36186	4	0,06/170

Equaling files

36353

Equaling files are parallel in both width and thickness for their entire length. Double-cut on the two sides and single-cut on both edges.

 	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No./No.	No.	lb., oz/g	Pack
4/101	36219	0	0,08/227	12
4/101	36277	2	0,08/227	12
4/101	36233	4	0,08/227	12
6/150	36239	00	1,05/595	12
6/150	36245	0	1,05/595	12
6/150	36253	2	1,05/595	12
8/200	36273	0	3,05/1503	6
8/200	36281	2	3,05/1503	6

Equaling files are also stocked in the following B & S gauges and in cut nos.

← L→	B&S	Cat./N/S	Cut
"/mm	Gauge	Cat./N/S No./No.	No.
4/101	16 (.051")	36301	2
4/101	18 (.040")	36321	2
6/150	12 (.081")	36353	0
6/150	12 (.081")	36359	2

Half round files

36515

Half round files taper in thickness and width to a point. Double-cut on both flat and half round sides.

← L→	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No./No.	No.	lb., oz/g	Pack
4/101	36450	00	0,08/227	12
4/101	36456	0	0,08/227	12
4/101	36464	2	0,08/227	12
4/101	36470	3	0,08/227	12
4/101	36476	4	0,08/227	12
5/127	36497	2	0,10/284	12
6/150	36515	00	1,03/539	12
6/150	36521	0	1,03/539	12
6/150	36527	1	1,03/539	12
6/150	36533	2	1,03/539	12
6/150	36539	3	1,03/539	12
6/150	36545	4	1,03/539	12
8/200	36557	00	2,10/1191	6
8/200	36563	0	2,10/1191	6
8/200	36569	1	2,10/1191	6
8/200	36575	2	2,10/1191	6
8/200	36581	3	2,10/1191	6
8/200	36587	4	2,10/1191	6
10/250	36593	00	5,10/2552	6
10/250	36599	0	5,10/2552	6
10/250	36607	2	5,10/2552	6

Half-round clicking die files



Clicking die files are the same length, kind and cut as regular half-rounds but best suited for work on rule or clicking dies.

← ↓ →	Cat /N/S	Cut	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No.	No.	lb., oz/g	Pack
6/150	36636	0	1,03/539	12
6/150	36648	2	1,03/539	12
6/150	36654	3	1,03/539	12
6/150	36660	4	1,03/539	12

Hand files



Hand files are parallel in width but taper in thickness. The sides are double-cut. Hand files in cut Nos. 00, 0, 1 and 2 are single-cut on one edge. The other edge is safe. Hand files in cut No. 4 have two safe edges.

←┖→ "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
4/101	36723	2	0,14/397	12
6/150	36737	00	2,05/1049	12
6/150	36743	0	2,05/1049	12
6/150	36749	1	2,05/1049	12
6/150	36755	2	2,05/1049	12
6/150	36767	4	2,05/1049	12
8/200	36779	00	4,09/2070	6
8/200	36785	0	4,09/2070	6
8/200	36791	1	4,09/2070	6
8/200	36797	2	4,09/2070	6
8/200	36805	4	4,09/2070	6
10/250	36823	0	8,00/3629	6

Knife files



Knife files are made from steel that is knife shaped, the included angle of the sharp edge being approximately 10°. These files taper in width and thickness. Double-cut on both sides. 6"/150mm length is single-cut on back; 4"/102mm and 8"/200mm have safe backs.

Cat. N/S	Cut	Wt. per doz.	Shelf Pack
INO. /INO.			
36933	00	0,07/198	12
36939	0	0,07/198	12
36945	1	0,07/198	12
36951	2	0,07/198	12
36957	4	0,07/198	12
36969	00	1,02/510	12
36975	0	1,02/510	12
36981	1	1,02/510	12
36987	2	1,02/510	12
37001	00	2,03/992	12
37007	0	2,03/992	12
37013	1	2,03/992	12
37019	2	2,03/992	12
	No. /No 36933 36939 36945 36951 36957 36969 36975 36981 36987 37001 37007 37013	No. No. No. 36933 OO 36939 O 36945 1 36951 2 36957 4 36969 OO 36975 O 36981 1 36987 2 37001 OO 37007 O 37013 1	No. /No. No. lb., oz/g 36933 00 0,07/198 36939 0 0,07/198 36945 1 0,07/198 36951 2 0,07/198 36957 4 0,07/198 36969 00 1,02/510 36975 0 1,02/510 36981 1 1,02/510 36987 2 1,02/510 37001 00 2,03/992 37013 1 2,03/992

Joint file - square edge thin

Joint files are parallel in width and thickness and are made with square edges. Double-cut on edges only. Sides are safe.

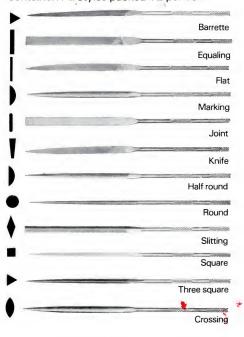
←	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No. /No.	No.	lb., oz/g	Pack
4/101	36909	1	0,05/142	12

mcHollon 15

Needle files

Round handle. Used principally by jewellers, die makers, watchmakers and fine toolmakers. They are made in twelve different shapes as illustrated. In 4"/101mm lengths, oval is furnished instead of crossing.

These files have knurled handles and when purchased in assortments are supplied in plastic pouches which serve as a protective container. All styles packed 12 per box.





Cat /N/S	← ↓→	-	_
No /No	"/mm	Shape	Cu
37029	4/101	Assortment	0
37035 37277	4/101	Assortment Barrette	0
37284		Barrette	2
37249	4/101		0
		Equaling	
37256	4/101	Equaling	2
37109 37116	4/101	Flat	2
	4/101	Flat	0
37081 37088		Half round	2
37305	4/101		0
37305	4/101	Joint (2 round edges)	2
37165		Joint (2 round edges)	0
	4/101	Knife (safe back)	
37171 37361	4/101	Knife (safe back)	2
		Marking (safe on flat side)	0
37368	4/101	Marking (safe on flat side)	2
37137 37144		Oval	0
	4/101	Oval	2
37053	4/101	Round	0
37060	4/101	Round	2
37333	4/101	Slitting	0
37340	4/101	Slitting	2
37193	4/101	Square	0
37200	4/101	Square	2
37221	4/101	Three square	0
37228	4/101	Three square	2
37392	5}/ 140		0
37398	5 }/ 140	Assortment	2
37404	5 1/ 140	Assortment	4
37640	5}/ 140	Barrette	0
37647	5 1/ 140	Barrette	2
37654	5 1/ 140	Barrette	4
37500	5 } / 140	Crossing	0
37507	5 } 140	Crossing	2
37514	5 / 140	Crossing	4
37612	5 1/ 140	Equaling	0
37619	5 } 140	Equaling	2
37626	51/140	Equaling	4
37472	5 1 140	Flat	0
37479	5 140	Flat	2
37486 37444	5 1 140	Flat	4
37444	5 1/ 140	Half round	2
37458	5 / 140	Half round	4
		Half round	
37668	5 }/ 140	Joint (2 round edges)	0
37675 37682	5 }/ 140	Joint (2 round edges)	4
	5 ½/ 140 5 ½/ 140	Joint (2 round edges) Knife (safe back)	
37528 37535		Knife (safe back)	2
37542	5 1/ 140		4
		Knife (safe back)	
37724 37731	5 ½/ 140 5 ½/ 140	Marking (safe on flat side)	2
37738	5}/ 140	Marking (safe on flat side)	4
37/38	5}/ 140	Marking (safe on flat side)	
37416		Round	0
	5}/ 140	Round	4
37430 37 6 96	5}/ 140	Round	
37703	5}/ 140 5}/ 140	Slitting	2
37703		Slitting	4
3//10	5}/ 140	Slitting	-

Cat /N/S No /No.		Shape	Cut
37556	5 }/ 140	Square	0
37563	5}/ 140	Square	2
37570	5}/ 140	Square	4
37584	5 }/ 140	Three square	0
37591	5 }/ 140	Three square	2
37598	5 }/ 140	Three square	4
37755	6 ∤ 159	Assorted	0
37761	6∤/ 159	Assorted	2
37767	6 ∤ 159	Assorted	4
37773	6 ∤ / 159	Assorted	6
38003	6 ∤ 159	Barrette	0
38010	61/159	Barrette	2
38017	6∤/ 159	Barrette	4
38024	61/159	Barrette	6
37863	61/159	Crossing	0
37870	61/159	Crossing	2
37877	61/159	Crossing	4
37884	61/159	Crossing	6
37975	61/159	Equaling	0
37982	61/ 159	Equaling	2
37989	61/159	Equaling	4
37996	61/159	Equaling	6
37835	61/159	Flat	0
37842		Flat	2
37849	6¥ 159	Flat	4
37856	61 159	Flat	6
37807	61/159	Half round	0
37814	6 ∤ 159	Half round	2
37821	6∤/ 159	Half round	4
37828	6 ∤ 159	Half round	6
38031	6 ∤ 159	Joint (2 round edges)	0
38038	6 ∤ 159	Joint (2 round edges)	2
38045	6 ∤ 159	Joint (2 round edges)	4
38052	6 ∤ 159	Joint (2 round edges)	6
37891	6 ∤ / 159	Knife (safe back)	0
37898	6 ₺ / 159	Knife (safe back)	2
37905	6 ∤ / 159	Knife (safe back)	4
38080	6 ∤ 159	Slitting	4
38087	6∤/159	Marking (safe on flat side)	0
38094	6 ∤ 159	Marking (safe on flat side)	2
38101	61/159	Marking (safe on flat side)	4
38108	6∤ 159	Marking (safe on flat side)	6
37779	61/159	Round	0
37786	6∤/159	Round	2
37793	6 ∤ 159	Round	4
37800	6 1/ 159	Round	6
38059	6 ∤ 159	Slitting	0
38066	6∤/159	Slitting	2
38073	61/159	Slitting	4
38080	61/159	Slitting	6
37919	61/159	Square	0
37926	6 / 159	Square	2
37933	61/159	Square	4
37940	61/159	Square	6
37947	61/159	Three square	0
37954	6∤/ 159	Three square	2
37961	61/159	Three square	4
37968	61/159	Three square	6
	24 .00		_

Needle files - round handle Hot die – barrette shape only

		with a state of the state of th	99977	ARAM CONTRACTOR	8.4.4.4.40
					38115
Same as regular round handle needle barrette except with thinner	←L→	Cat./N/S	Cut	Wt. per doz.	Shelf
points. $5\frac{1}{2}$ "/140mm has .039"/1.0mm point thickness,	"/mm	No./No.	No.	lb., oz/g	Pack
61"/159mm has 044"/1 10mm thickness.	F1/	27752	0	0.04/113	12

←┖→ "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
5½/	37752	0	0,04/113	12
61/	38115	0	0,06/170	12

8"/203 parallel machine files

 $8^{\prime\prime}/203 mm$ parallel machine files are made for filing machines of the Oliver, Harvey, Butterfly, Cochrane-Bly types. There are eight different file shapes as illustrated. Cut No. 00. Direction of cutting stroke is towards the shank.

	<u> </u>	Cat. /N/S No. /No.	Wt. per doz. lb., oz/g	Shelf Pack
	"/mm x "/mm	No. /No.	ID., 02/g	Fack
	Round			
38917	$\frac{3}{16}/4.76$	38917	0,70/318	12
	1/6.35	38929	1,20/544	12
	₹/9.52	38953	2,70/122	12
26.2	Half round			
38993	$\frac{1}{4}/6.35 \times \frac{1}{8}/3.17$	38993	0,70/318	12
36355	$\frac{3}{8}/9.52 \times \frac{3}{16}/4.76$	39005	1,45/658	12
	Knife (safe back)			
	15/11.90	39093	0,85/386	12
	Square			
20117	₹/6.35	39117	1,65/748	12
39117	₹/9.52	39129	3,20/1452	12
	Equaling (or warding)			
	$\frac{3}{8}/9.52 \times \frac{1}{16}/1.58$	39205	0,65/295	12
	Three Square			
39217	3 ₁₆ /4.76	39217	0,60/272	12
•	1/6.35	39229	0,95/431	12
	₹/9.52	39241	1,85/839	12

Parallel machine files – special (tension type)

39337

Special parallel machine files (tension type) are made for use in Thiel, Simplex, Excel and index filing machines. Made in cut No.1 (Bastard).

← L → " /mm	Cat./N/S	Cut	Style
"/mm	No./No.	No.	No.
Flat			
6/150	39337	1	7
Half Round			
4/101 39614		1	82
Crochet			
4/101	39741	1	145
4/101	39753	1	146

Pillar files



Pillar files are similar in shape to hand files but only two-thirds as wide. Double-cut on two sides only. Edges are safe.

← L→	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No. No.	No.	lb., oz/g	Pack
4/101	39855	00	0,10/284	12
4/101	39861	0	0,10/284	12
4/101	39873	2	0,10/284	12
4/101	39881	4	0,10/284	12
6/150	39893	00	1,10/737	12
6/150	39899	0	1,10/737	12
6/150	39905	1	1,10/737	12
6/150	39911	2	1,10/737	12
6/150	39923	4	1,10/737	12
8/200	39929	00	3,08/1588	6
8/200	39935	0	3,08/1588	6
8/200	39941	1	3,08/1588	6
8/200	39947	2	3,08/1588	6
8/200	39959	4	3,08/1588	6
10/250	39965	00	6,03/2807	6
10/250	39971	0	6,03/2807	6
10/250	39980	2	6,03/2807	6
12/300	39992	00	9,12/2807	6

Pillar narrow files

40070

Pillar narrow files are similar to Pillar files but are narrower for their length. Double-cut on two sides only. Edges are safe.

	Cat. / N/S	Cut	Wt. per doz.	Shelf
"/mm	No./No.	No.	lb., oz/g	Pack
4/101	40037	0	0,08/227	12
4/101	40049	2	0,08/227	12
6/150	40070	00	1,04/567	12
6/150	40076	0	1,04/567	12
6/150	40082	1	1,04/567	12
6/150	40088	2	1,04/567	12
6/150	40097	4	1,04/567	12
8/200	40109	00	2,10/1191	6
8/200	40115	0	2,10/1191	6
8/200	40121	1	2,10/1191	6
8/200	40127	2	2,10/1191	6
10/250	40141	00	5,03/2353	6
10/250	40147	0	5,03/2353	6

Pillar extra narrow files

Pillar extra narrow files are similar to Pillar and Pillar narrow files but are narrower for their length. Cut on the two sides only. Edges are safe.

← L→	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No. No.	No.	lb., oz/g	Pack
4/101	40204	00	0,05/142	12
4/101	40210	0	0,05/142	12
4/101	40222	2	0,05/142	12
6/150	40242	00	0,13/369	12
6/150	40248	0	0,13/369	12
6/150	40254	1	0,13/369	12
6/150	40260	2	0,13/369	12
6/150	40269	4	0,13/369	12
8/200	40281	00	1,15/879	12
8/200	40287	0	1,15/879	12
10/250	40314	00	3,11/1673	12

Pillar and pillar narrow testing files

These testing files are like our regular product in shape only. They are not made for removal of stock, but are for testing only. They

have specially shaped teeth and have been specially treated.

|**←**|-Shelf Cat./N/S No./No. Cut Wt. per doz. No. Pack Description lb., oz/g " /mm 1,10/737 40406 1 12 6/150 Pillar Testing 2,10/1191 6 40412 0 8/200 Pillar Narrow 2,10/1191 6 Testing 40418

Hardness testing with pillar testing files

Before leaving our plant, each file is tested on both sides on a piece of high carbon tool steel that has been hardened and tempered to 375°F(190°C). Each file must bite this piece of steel in good shape. These 375°F(190°C) provers register C63-65 Rockwell and about No. 88 Scleroscope. When files are made to a standard and when it is known just the hardness that a new file will cut, then the file test becomes a real standard test. Since Nicholson testing files are made to such a standard and must be uniform, the file test is the same from day to day. Of course, the file in time will get dull, but good judgment on the part of the workman overcomes this difficulty.

These files are not made for filing off stock; they are just for testing. As soon as the file bites, it should be removed from the work in order to preserve and prolong its biting quality. If it does not bite, the work is too hard for the file. Pieces of steel or samples of the product known to have the proper hardness and temper are often used as gauges for comparison. Our hardness testing files are used to a large extent by manufacturers of taps, drills, bits, reamers, ball bearings, gears, etc.

Pippin files



40494

40242

40412

Pippin files, sometimes called "Apple Seed" files, have rounded backs which taper to a sharp edge. They also taper to a point in both width and thickness.

	Cat. /N/S	Cut	Wt. per doz.	Shelf
" /mm	No./No.	No.	lb., oz/g	Pack
4/101	40478	0	0,07/198	12
4/101	40486	2	0,07/198	12
6/150	40494	00	1,01/482	12
6/150	40500	0	1,01/482	12
6/150	40506	2	1,01/482	12
8/200	40512	00	1,13/822	12
8/200	40518	0	1,13/822	12
8/200	40524	2	1,13/822	12

Round files

40645

Round files taper throughout their length to a fine point. Double-

← - → "/mm	Dia. "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
4/101	⅓"/3mm	40574	00	0,04/113	12
4/101	1″/3mm	40580	0	0,04/113	12
4/101	⅓"/3mm	40592	2	0,04/113	12
4/101	1/2 /3mm	40604	4	0,04/113	12
6/150	3 ₁₆ "/4.76mm	40645	00	0,11/312	12
6/150	3 ₁₆ "/4.76mm	40651	0	0,11/312	12
6/150	3/16"/4.76mm	40657	1	0,11/312	12
6/150	3/16"/4.76mm	40663	2	0,11/312	12
6/150	3 ₁₆ "/4.76mm	40675	4	0,11/312	12
8/200	 4″/6mm	40687	00	1,05/595	12
8/200	¼"/6mm	40693	0	1,05/595	12
8/200	¼"/6mm	40699	1	1,05/595	12
8/200	1," /6mm	40705	2	1,05/595	12
8/200	∄"/6mm	40717	4	1,05/595	12
10/250	21"/8.3mm	40729	0	2,11/1219	12
10/250	21"/8.3mm	40741	2	2,11/1219	12

Round straight files



Round straight files are made from the same sizes of steel as round files but are parallel throughout their length. Double-cut.

←-L→ "/mm	Dia. "/mm	Cat. /N/S No. /No.	Cut No.	Wt. per doz. lb., oz/g	Shelf Pack
4/101	1"/3mm	40765	0	0,04/113	12
6/150	3/16"/4.76mm	40789	0	0,14/397	12
8/200	∄"/6mm	40813	0	1,12/794	12

Screw head files





Screw head files are made for enlarging and cleaning out the slots in the heads of screws. They are made in one style, in one size only and in one cut, and are used principally by watchmakers and jewelers.

← \ →	Cat. / N/S	Wt. per doz.	Shelf
"/mm	No. / No.	lb., oz/g	Pack
3/50	40972	0,03/85	12

Slitting files





Slitting files are made of double angular section, the included angle between the sides being approximately 18°. Double-cut on the four sides and single-cut on the two sharp edges.

← L →	Cat /N/S	Cut	Wt. per doz.	Shelf
"/mm	Cat. /N/S No. /No.	No.	lb., oz/g	Pack
4/101	41138	2	0,06/170	12
6/150	41144	0	0,14/397	12
6/150	41150	2	0,14/397	12

$7\frac{1}{2}$ "/190mm Silversmith's rifflers



Silversmith's rifflers are made in approximately $7\frac{1}{2}$ "/190mm lengths only, in twelve shapes as illustrated. May be purchased in assortments or in any quantity of each shape.

← L→	Cat. /N/S		Cut	Shelf
"/mm	No. /No.	Shape	No.	Pack
71/190	40978	Assorted	0	12
7½/190	40983	Assorted	2	12
7½/190	40988	1	0	12
7½/190	40994	1	2	12
71/190	41000	2	0	12
7½/190	41006	2	2	12
71/190	41012	3	0	12
71/190	41018	3	2	12
7½/190	41024	4	0	12
7½/190	41030	4	2	12
7½/190	41036	5	0	12
71/190	41042	5	2	12
7½/190	41048	6	0	12
7½/190	41054	6	2	12
7½/190	41060	7	0	12
7½/190	41066	7	2	12
7½/190	41072	8	0	12
7½/190	41078	8	2	12
7½/190	41084	9	0	12
7½/190	41090	9	2	12
7½/190	41096	10	0	12
7½/190	41102	10	2	12
7½/190	41108	11	0	12
7½/190	41114	11	2	12
7½/190	41120	12	0	12
7½/190	41126	12	2	12

Square files

41210

Square files are square in section and taper on all four sides to a fine point. Double-cut on all four sides.

Cat /N/S	Cut	Wt. per doz.	Shelf
No. No.	No.	lb., oz/g	Pack
41184	0	0,04/113	12
41196	2	0,04/113	12
41210	00	0,10/284	12
41216	0	0,10/284	12
41228	2	0,10/284	12
41243	00	1,08/680	12
41249	0	1,08/680	12
41261	2	1,08/680	12
41270	00	3,00/1361	12
	41184 41196 41210 41216 41228 41243 41249 41261	No./No. No. 41184	No. /No. No. lb., cz/g 41184 0 0,04/113 41196 2 0,04/113 41210 00 0,10/284 41216 0 0,10/284 41228 2 0,10/284 41243 00 1,08/680 41249 0 1,08/680 41261 2 1,08/680

Three square files



Three square files are triangular in section with angles of 60°. They taper to a point and have sharp corners. Double-cut on the three sides and single-cut on the edges.

	Cat./N/S	Cut	Wt. per doz.	Shelf
"/mm	No. /No.	No.	lb., oz/g	Pack
4/101	41448	00	0,06/170	12
4/101	41454	0	0,06/170	12
4/101	41466	2	0,06/170	12
6/150	41480	00	1,10/737	12
6/150	41486	0	1,10/737	12
6/150	41492	1	1,10/737	12
6/150	41498	2	1,10/737	12
6/150	41506	4	1,10/737	12
8/200	41512	00	2,10/1191	12
8/200	41518	0	2,10/1191	12
8/200	41524	1	2,10/1191	12
8/200	41530	2	2,10/1191	12

Warding files



Warding files are rectangular in section with thickness approximately one-eighth their width. They taper slightly in thickness and to a point in width.

← L→	Cat. /N/S	Cut	Wt. per doz.	Shelf
"/mm	No./No.	No.	lb., oz/g	Pack
4/101	41576	00	0,05/142	12
4/101	41582	0	0,05/142	12
4/101	41588	2	0,05/142	12
6/150	41606	00	0,13/369	12
6/150	41612	0	0,13/369	12
6/150	41618	2	0,13/369	12
6/150	41624	4	0,13/369	12
8/200	41636	00	1,10/737	12
8/200	41642	0	1,10/737	12
8/200	41648	2	1,10/737	12

Warding files are also stocked in the following B & S gauges, and in the cut No. shown below.

←	Cat./N/S	Cut	B & S Gauge	Wt. per doz.	Shelf
"/mm	No./No.	No.		lb., oz/g	Pack
6/150	41775	0	16 B &S Gauge (.051)	0,13/369	12

Nicholson® Curved Tooth Files

Superior* milled tooth files. Made on newly designed and improved Nicholson machinery, these files are ideally fitted for smooth, rapid work on cast iron, bronze, lead, Babbitt, aluminum, zinc, plastics and any of the steels up to the hardness of commercial annealed tool steel. Tooth profile is scientifically determined for the right pitch and rake to avoid pinning up and to give the smoothest finish.

Flexible files(without tang)



⊷ "/mm	Cat /N/S No /No.	No. of Teeth per inch/cut	Wt. per doz. lb., oz/g	Shelf Pack
8/200	20046	14/Standard	2,09/1162	12
10/250	20089	12/Standard	3,15/1786	12
12/300	20138	10/Standard	5,08/2495	6
14/350	20189	8/Standard	7,01/3204	6
14/350	20205	12/Fine	7,01/3204	6
14/350	20222	15/Smooth	7,01/3204	6
14/350	20222	15/Smooth	7,01/3204	_

Milled tooth bodifiles



Cut	Cat. / N/S No. / No.	No. of Teeth per inch	Wt. per doz. lb., oz/g	Shelf Pack
50-907	21320	7	7,01/3204	6
50-908	20189	8	7,01/3204	6
50-910	21348	10 Radius edges	7,01/3204	6
50-912	21361	12 Radius edges	7,01/3204	6

Flat Files-rigid type(with tang)



←↓→ "/mm	Cat /N/S No /No.	No. of Teeth per inch/cut	Wt. per doz. lb., oz/g	Shelf Pack
8/200	20239	14/Standard	2,12/1247	12
10/250	20291	12/Standard	5,14/2665	6
12/300	20342	10/Standard	9,05/4224	6
14/350	20393	8/Standard	14,14/6747	6

Flat Babbitt files



Exactly like flat files in shape, dimension and weight, but fewer teeth per inch.

←└→ "/mm	Cat /N/S No. /No.	No. of Teeth per inch	Wt. per doz. lb., oz/g	Shelf Pack
12/300	20479	8	9,04/4196	6
14/350	20496	7	14,12/6691	6

20479

Flat utility files



20547

20582

Like flat files in general appearance. Standard cut teeth on one side, smooth cut teeth on the other.

← "/mm	Cat./N/S No./No.	No. of Teeth per inch	Wt. per doz. lb., oz/g	Shelf Pack
12/300	20547	10 and 16	10,03/4621	6
14/350	20564	8 and 15	16,13/7626	6

Half round files

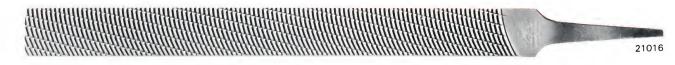


Flat on one side, convex on the other. Particularly adapted for bearings and concave surfaces.

Cat /N/S	No. of Teeth	Wt. per doz.	Shelf Pack
			12
20624	12/Standard	6,05/2863	6
20667	10/Standard	11,05/5131	6
20703	9/Standard	17,09/7966	6
		No. No. per inch/cut 20582 14/Standard 20624 12/Standard 20667 10/Standard	No. No. per inch/cut lb., oz/g 20582 14/Standard 3,08/1588 20624 12/Standard 6,05/2863 20667 10/Standard 11,05/5131

Super shear®

A double purpose milled curved tooth file—new and different and exclusive with Nicholson * . A curved tooth file that smooths as it roughs.



The curved teeth of the Nicholson super shear are cut in an arc that is "off center" in relation to the axis of the file. This permits the teeth to begin with wide gullets and a right angle—for fast cutting. The Nicholson super shear file (patented) is a distinctively new "double purpose" milled tooth file for wide industrial usage on the flat and convex surfaces of aluminum, brass, Babbitt, bronze, copper, magnesium, and iron, annealed steel and soft metal alloys, on plastics, hard rubber and hardwood.

ı⊷ ″/mm	Cat./N/S No./No.	No. of Teeth per inch/cut	Wt. per doz. lb., oz/g	Shelf Pack
8/200	21016	14/Standard	2,12/1247	12
10/250	21067	12/Standard	5,14/2665	6
12/300	21118	10/Standard	9,05/4224	6
14/350	21169	14/Standard	17,00/7711	6

Miscellaneous Nicholson® Tools:

Adjustable flexible file holder No. 25



Can be used with either 12" or 14" Files and is easily adjusted for curving the file either outward or inward.

No.	Cat /N/S	Wt. per doz.	Shelf
	No./No.	lb., oz/g	Pack
25	21272	2,00/907	11

Machinist's scrapers(handled)



Note that the three square shape is supplied in hollow ground with 60° angle. Overall length of these tools including handle is approximately 8". Packed one-half dozen in box.

Cat /N/S No /No.	Length Overall	Dimensions "/mm x "/mm	Wt. per doz. lb., oz/g	Shelf Pack
21667	8/200	3½/82mm x ⅓/10mm	1,14/851	12

Metal ferruled handles



These handles have very strong metal ferrules. Made from seasoned white birch with nickel plated ferrules. Shellac finish.

No.	Cat./N/S No./No	Approximate size "/mm x "/mm	Wt. per doz. lb., oz/g	Shelf Pack
0	21476	5½/133 x 1½/38	2,00/907	12
1	21485	47/124 x 15/33	1,10/737	12
2	21494	$4\frac{1}{2}/114 \times 1\frac{3}{16}/30$	1,04/567	12
3	21503	4½/105 x 1½/27	1,00/454	12
4	21511	3¾/95 x 1 § /24	0,12/340	12

Sizes of handles recommended for some of the more common files:

	"/mm	"/mm	"/mm	"/mm	"/mm	"/mm
Description	6/150	7/178	8/200	10/250	12/300	14/254
Flat, Half Round hand	3	_	2	1	0	0
Square, round	4	_	3	2	1	1
Three square	3	_	2	1	0	
Pillar	2	_	1	0	0	_
Warding, knife	2	_	2	1	_	_
Mill	3	3	2	1	0	0
Slim, taper	4	2	2	1	-	_
Extra slim taper	4	4	3	-	_	
Double extra slim taper	4	4	4	_	-	_

Bent rifflers (handled)



Three square bastard Half round bastard





Three square rasp





Used principally by woodcarvers, metal and stone workers for shaping and finishing in and about the many irregular places of pattern work. Made in six different shapes and styles of cuts. Overall length of tools, including handle, is approximately $7\frac{3}{4}$ inches. Available in assortments of 6 only.

Assortment of 6

←┖→	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
73/197	21450	0,84/382	6

File cleaners



Nicholson[®] makes file cleaners in two styles—the file card for general cleaning of file teeth and the file brush especially for use on the finer cut files. Overall length of each type cleaner is 10".

File Card

← L →	Cat. /N/S	Wt. per doz.	Shelf
"/mm	No. /No.	lb., oz/g	Pack
10/250	21458	3,11/1673	12

File Brush			
10/250	21467	5,00/2268	6

Butcher steel



Deluxe sharpening steel suitable for displaying with the finest cutlery. Walnut-stained hardwood handle, chrome plated solid ring and guard. Threaded tang and serrated teeth. Steel magnetized to collect chips.

Code No.	Cat. /N/S No. /No.	"/mm x "/mm	Wt. per doz. lb., oz/g	Shelf Pack
7A	23333	12/300 x §/16	14,00/6350	6
8A	23392	14/350 x ₹/16	15,08/7031	6

Household steel



Economy household steel for general kitchen use. A serrated cut, magnetized steel and cadmium plated fuse and guard. Screw eye in end of handle.

Code No.	Cat. /N/S No. /No.	"/mm x "/mm	Wt. per doz. lb., oz/g	Shelf Pack
45	23769	10/250 x 3/10	4,05/1956	6

Nicholson® carded files

Carded files without handle



Description "/mm x "/mm	Cat. /N/S No. /No.	Pack	Wt. per Shelf Pk. lb., oz/g
6/150 Mill Bastard	21825	6	1,5/595
8/200 Mill Bastard	21832	6	2,1/936
10/250 Mill Bastard	21839	6	3,8/1588
12/300 Mill Bastard	21842	6	5,1/2296
6/150 Round Bastard	21846	6	0,15/425
8/200 Round Bastard	21853	6	1,5/595
10/250 Round Bastard	21854	6	2,1/936
8/200 4-in-Hand	21860	6	2,1/936
6/150 Slim Taper	21866	6	1,5/595
6/150 Flat Bastard	21867	6	1,5/595
6/150 X Slim Taper	21873	6	1,3/539
6/150 XX Slim Taper	21874	6	0,15/425
8/200 Flat Bastard	21862	6	2,7/1106
8/200 Half Round Bastard	21857	6	2,1/936
10/250 Flat Bastard	21868	6	3,9/1616
10/250 Half Round Bastard	21858	6	3,9/1616
8/200 Half Round Wood Rasp	21878	6	2,1/936
8/200 x 1/6 Round Chainsaw File	01974	6	2,3/992
8/200 x 3/2/5 Round Chainsaw File	01888	6	2,0/907
8/200 x 3/6/4 Round Chainsaw File	01765	6	1,13/822
6/150 x ई/3 Round Chainsaw File	01630	6	1,3/539
6/150 x ½/3 Round Chainsaw File	01590	6	1,0/454
Modular displays are available for these file	es. Please see page	87.	

Carded Files with handle



Description "/mm	Cat. /N/S No. /No.	Pack	Wt. per Shelf Pk. lb., oz/g
6/150 Mill Bastard	21687	6	1,2/510
8/200 Mill Bastard	21694	6	2,0/907
10/250 Mill Bastard	21701	6	3,14/1758
6/150 Round Bastard	21708	6	1,0/454
8/200 Round Bastard	21715	6	1,6/624
10/250 Round Bastard	21720	6	2,13/1276
6/150 Slim Taper	21729	6	1,1/482
6/150 X Slim Taper	21736	6	0,15/425
6/150 XX Slim Taper	21743	6	0,12/340
8/200 Half Round Bastard	21745	6	2,7/1106
10/250 Half Round Bastard	21746	6	3,15/1786
8/200 Flat Bastard	21748	6	2,1/936
8/200 Half Round Wood Rasp	21749	6	2,1/936

Mini files



A selection of 6 miniature files with a fine cut for intricate work. Available either separately or all 6 in a handy vinyl case vacuum-packed on hang-up card.

Description	Cat. /N/S No. /No.	← " /mm	Wt. per shelf pk. lb., oz/g	Shelf Pack
Equaling	42001	5½/140	1,2/510	12
Half round	42010	5½/140	1,2/510	12
Flat	42005	5½/140	1,2/510	12
Round	42015	5½/140	1,2/510	12
Square	42020	5½/140	1,2/510	12
Three square	42025	5½/140	1,2/510	12
Assorted	42030	5½/140	0,12/340	3

Handy man's home file pack



For home and professional use, this handy file pack contains a file for every home purpose. 8"/200mm Mill Bastard, 8"/200mm four-in-hand, 6"/150mm Slim Taper and 6"/150mm Round Bastard. The convenient plastic pouch lists suggested uses for each file. Pack measures 5"/125mm and 11 \frac{1}{8}"/293mm with hang hole.

Contents

Description "/mm	Cat. /N/S	Weight	Shelf
	No. /No.	lb., oz/g	Pack
8/200 Mill Bastard, 6/150 Round Bastard, 8/200 4-in-hand, 6/150 Slim taper, pouch.	22017	4,8/2041	5

3 file pack



For home and professional use, this 3 file pack contains a file for every purpose 6''/150mm Slim Taper, 6''/150mm Round File, 6''/150mm Mill Bastard. The plastic pouch lists suggested uses for each file. Pack measures $3\frac{1}{2}''/88$ mm $\times 9\frac{1}{2}''/237$ mm with hang hole.

Contents

Description	Cat./N/S	Weight	Shelf
"/mm	No./No.	lb., oz/g	Pack
6/150 Slim Taper, 6/150 Round File, 6/150 Mill Bastard, Pouch.	22015	0,4½/128	5

Home and garden file



Sharpens knives, scissors and garden tools. Sharpens rotary mower blades to knife-like edge and smooths nicks that tear grass. Files come skin-packed for pegboard display. Shipped in its own corregated merchandisers for retail display. Available carded only.

←-L-→	Size	Cat. /N/S	Wt. per doz.	Shelf
"/mm	"/mm	No. /No.	lb., oz/g	Pack
10/250	$\frac{3}{4}/19 \times \frac{9}{64}/3.57$	11488	4,8/204	12

Handy file



This gives the user a combination file, single-cut on one side for sharpening edged tools and smoothing metal surfaces, double-cut on other side for rapid removal of metal. One edge is "cut" and the other is "safe" or "uncut." Convenient "hang up" hole. (Skin packed). Length measured exclusive of handle. Available carded only.

←	Size	Cat./N/S	Wt. per doz.	Shelf
" /mm	"/mm	No./No.	lb., oz/g	Pack
8/200	$\frac{31}{32}/24 \times \frac{11}{64}/4.4$	06601	5,10/2552	6

Carded chainsaw file guide with file and handle



First chainsaw file guide that's so simple to use it can turn almost anyone into an expert. Features filing angle indicator and flat guide edge that positions just the right angle and depth of each file stroke. Lightweight yet corrosion proof and extra durable because it's made of nylon which acts as a lubricant to insure a free-sliding stroke. The $\frac{3}{18}$ " /4.7mm, $\frac{3}{12}$ " /5.5mm, and $\frac{1}{4}$ " /6mm files can be used interchangeably on the 8" /200mm guide and the $\frac{1}{8}$ " /3mm and $\frac{5}{2}$ " /4mm files can be used interchangeably on the 6" /150mm guide. Available in 6" /150mm and 8" /200mm models designed to accommodate the five most popular diameters of round chainsaw files.



Length "/mm x "/mm	Description	Cat. /N/S No. /No.	Wt. per Shelf Pk. lb., oz/g	Shelf Pack
8/200 x ½/6	Chainsaw File Guide	82001	2,3/992	4
8/200 x 1/2 /5.5	Chainsaw File Guide	82002	2,0/907	4
8/200 x 3/4.7	Chainsaw File Guide	82003	1,13/882	4
6/150 x 5/4	Chainsaw File Guide	82004	1,3/539	4
6/150 x ½/3	Chainsaw File Guide	82005	1,0/454	4

Three-in-one depth gauge



depth gauge 3 in 1



Used for filing and maintaining proper depth gauge clearance.

Item	Cat. /N/S No. /No.	Wt. per Shelf Pk. lb., oz/g	Shelf Pack
3-in-1 Depth Gauge	82008	2,4/1021	6

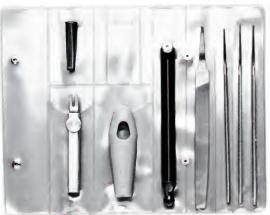
Carded file handle



Description	Cat. /N/S No. /No.	Wt. per Shelf Pk lb., oz/g	Shelf Pack
Carded file handle and inserts	21474	-	6

Chainsaw sharpening kits

New!



New kit, available in 3 sizes for $\frac{7}{32}$ "/5.5mm, $\frac{5}{32}$ "/4mm and $\frac{1}{8}$ "/3mm cutters.

Kit includes 3 round files for sharpening cutters; mill bastard file for planing depth gauge; the file guide to ensure correct angle and depth of filing; handle and inserts for all files and depth gauge tool. Handy carrying wallet.

Cat. /N/S No. /No.	Size "/mm	Wt. per Shelf Pk. lb., oz/g	Shelf Pack
21751	⁷ / ₃₂ "/5.5		6
21752	5 ₃₂ "/4		6
21753	½"/3		6

Nicholson Modules TW-20 (21848) File Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 21 lb/9.52 kg Contains: Six (6) Each 21825, 21832, 21839, 21846, 21853, 21860, 21866, 21873, 21874, 06601 TW-20A (21849) refill assortment only.

TW-21 (21850) File Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 29 lb/13.15 kg Contains: Six (6) Each 21687, 21694, 21701, 21708, 21715, 21860, 21729, 21736, 21745, 06601 TW-21A (21851) refill assortment only.

TW-22 (21855) File Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 26 lb/11.79 kg Contains: Three (3) Each 22017 Six (6) Each 21842, 21854, 21857, 21858, 21862, 21878, 21474 TW-22A (21856) refill assortment only.

TW-23 (01655) Chainsaw File Module



Size: 16" /400mm x 16" /400mm (B) Shipping weight: 9 lb/4.08 kg Contains: Three (3) Each 01765, 82002, 82003, 82004 Six (6) Each 01888, 01630 TW-23A (01656) refill assortment only.

TW-102 (21844) File Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 15 lb/6.80 kg Contains: Three (3) Each 11491, 21860, 21694, 21687, 21701, 21729, 21736, 21743, 21715, 21708 TW-102A (21845) refill assortment only.

TW-206 (21865) Nicholson Hobby File Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: Contains: Two (2) Each 42001, 42005, 42010, 42015, 42020, 42025, 21825, 21846, 21866, 22015 Four (4) Each 42030 TW-206A (21871) refill assortment only.

Nicholson Rotary Files and Burs

Facts about Rotary Power Filing

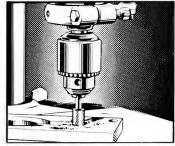
If you are considering power filing as a method of abrading or smoothing metal—and it's a mighty fine method for certain jobs—you have a choice of hand cut rotary files or ground from soild burs—the latter type made either from high speed steel or carbide. The purpose of this section is to discuss their uses, explain their anatomy, analyze their advantages and warn you against their limitations; to suggest the best methods of using these power tools; and to recommend appropriate speeds at which they can be operated.

First let's consider the general applications of these power driven hand

tools throughout industry.

Both types—rotary files and ground burs (high speed and carbide)— are widely used in die sinking, metal pattern making, mold finishing, tool making and finishing small and intricate parts. In such work they are used for breaking and chamfering corners, removing burs and fins; for elongating holes and slots and other hard to get at places. Name almost any metalworking plant and you find a potential field for power filing.

The aircraft industry uses burs on aluminum, titanium and magnesium, frequently finding the "Tree Shapes" with tapered points or rounded noses suitable for its particular applications, and the oval shapes equally valuable. If you visit a machine tool manufacturer you'll probably discover power files at work on such jobs as "balancing" castiron pulleys. Makers of fire fighting equipment touch up such parts as brass nozzles, prior to polishing.



Cylindrical bur in drill press deburring cut-out area of plate



In pattern shops, the ball shape forms fillets of metal match plates and removes burs in drilled holes, especially on concave or convex surfaces. The inverted cone shape is just right to get at the corners of sheet metal boxes where the excess metal is to be removed.

This, of course, is only a partial list of suggested applications which would run into hundreds. In using rotary files and ground burs instead of abrasive stones and grindstone tips, the filer has the advantage of greater speed and the knowledge that his tools will not clog or grime up, shatter or break.

Anatomy

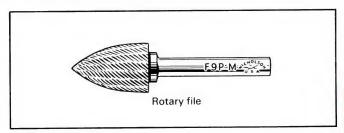
Rotary files and burs may be defined as power tools, used with flexible shaft or stationary shaft machines, portable electric or air tools, with teeth or flutes cut or ground on the surface and used for abrading and smoothing metals and other materials.

Expanding this definition, we find that the business end of the tool is the "head" or "cut section" and that these heads come in a variety of shapes from the cylindrical to the tree shaped, ball and inverted cone. Length usually refers to head or cut section. Tip is called the point or nose depending on whether it is rounded or pointed. The part of the head from which the shank extends is called the "base" or the "heel". The teeth or flutes generally come in two degrees of coarseness, i.e., coarse (C) and medium (M)—the choice depending on the amount of stock to be removed and the finish desired. Shanks are usually \(\frac{1}{2}\)" in diameter on files and burs used for heavy and medium jobs, \(\frac{1}{2}\)" when the tool is designed for use on relatively delicate operations.

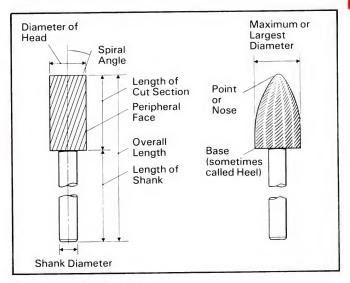
Hand Cut Versus Ground from Solid

We now start to appraise the differences between the hand cut and ground, each made from high speed steel.

As their name indicates, hand cut rotary files are cut by an expert handcutter, using a hammer and a chisel to cut or form each tooth. Although he may have a blueprint to guide him, the hand-cutter depends upon his ability to hold the chisel at just the correct angle and to strike a blow of just the right force.



Because the teeth of hand cut rotary files are "broken up," in contrast to the "unbroken flutes" of the ground bur, they are better fitted for work on tough and dense metals. These teeth seem to dissipate the heat created by the friction of the file on this type of material. Therefore they are recommended for steel forgings, or any scaly tough dense surface or metal.



Ground Burs

Ground burs are cut with a series of unbroken flutes instead of the "broken up" teeth characteristic of hand cut files. Basic flutes extend the full length of the cutting head, from the base to the nose, and intermediate flutes cut into the basic flutes at appropriate places. Some ground burs are made with "alternate fluting," which means that every other flute extends to the extreme point of the tool. The flutes of the ground bur are cut by an operator using a grinding wheel. While a "free hand" method of grinding is quite common, the Nicholson method calls for precision machine grinding which insures accuracy of shape and even tooth height around the periphery, the latter feature eliminating jumping, vibration and non-uniform wear. Each bur is cut on a machine actuated by a master bur guaranteeing absolute uniformity of burs of the same type and size, no matter how many are

produced. In general, ground burs are much more efficient than hand cut rotary files on non-ferrous metals such as aluminum, brass, bronze and magnesium. Because of the ductility to these metals, burs are ideal cutting tools, since their ground teeth free themselves readily of chips.

Tips on Using Files and Burs

Rotary files and ground burs can be used in drill presses, lathes and electrically or air-operated hand or flexible shaft equipment. There is very little difference in the efficiency of files or burs in electric tools as compared to air tools, providing that the speeds have been reasonably well selected. The choice between electric and air tools is usually determined by the equipment which is available in a given plant.

The following principles should help the user toward the best results:

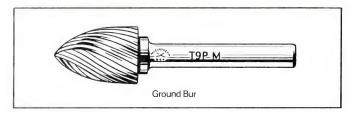
A—Move the file or bur at an even rate and pressure to avoid the "hills and dales" which will show up if an unsteady pressure is applied.

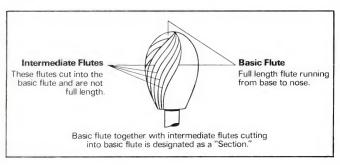
B – The speed at which the bur can be driven depends to a great extent on the size of the bur. The smaller the bur, the faster the speed. (see chart).

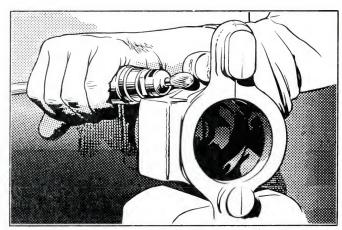
 ${f C}$ – Be sure to use sharp files or burs. Never overlook the fact that the operator's time is the big cost item and he needs well sharpened tools. ${f D}$ – Use a short grip on the shank for accurate control and a longer

grip for reaching the out-of-the-way places.

E – Normally, medium cut files or burs will give sufficient stock removal and acceptable finish to meet most needs. However, if heavier cutting or greater stock removal is required, coarse cut should be used.







An oval shaped bur smoothing edges of concave section. Flexible shaft machine is used.

How about Speeds

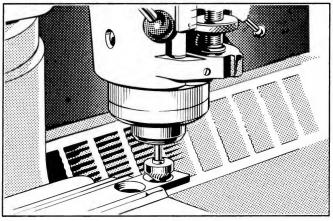
It is extremely difficult to give the correct recommendations because the speed is bound to vary with the skill and technique of the operator; the type of power which is being used; the material which is being removed or finished; the type of operation-finishing stock removal, etc. A certain amount of flexibility is obtained in that higher speeds than normal tend towards a better finish but less stock removal while slower than normal speeds give greater stock removal but a poorer finish.

The table below is given in revolutions per minute rather than in surface feet per minute because the former are more conveniently used. It is very important, however, that any table of speeds should specify the diameter of the bur which is to be used at the recommended speed, because the surface feet per minute is the basis of calculation.

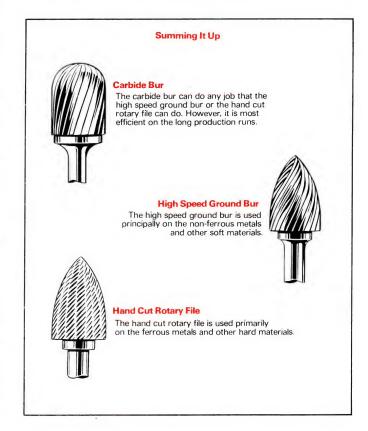
Undoubtedly many instances can be cited in which burs have been used successfully at speeds much higher than those in our table. The best way is to determine from experience what speeds will give the most satisfactory results on a particular job. It should also be borne in mind that flexible shaft machines have a limited number of speeds and that these govern to a considerable extent the revolutions per minute which can be used.

Approximate Speeds (R.P.M.) For High Speed Steel Rotary Files and Burs in Medium Cut

Mild Steel	Cast Iron	Bronze	Aluminum	Magnesium
4600	7000	15000	20000	30000
3450	5250	11250	15000	22500
2750	4200	9000	12000	18000
2300	3500	7500	10000	15000
2000	3100	6650	8900	13350
1900	2900	6200	8300	12400
1700	2600	5600	7500	11250
1600	2400	5150	6850	10300
1500	2300	4850	6500	9750
1400	2100	4500	6000	9000
	4600 3450 2750 2300 2000 1900 1700 1600 1500	4600 7000 3450 5250 2750 4200 2300 3500 2000 3100 1900 2900 1700 2600 1600 2400 1500 2300	4600 7000 15000 3450 5250 11250 2750 4200 9000 2300 3500 7500 2000 3100 6650 1900 2900 6200 1700 2600 5600 1600 2400 5150 1500 2300 4850	4600 7000 15000 20000 3450 5250 11250 15000 2750 4200 9000 12000 2300 3500 7500 10000 2000 3100 6650 8900 1900 2900 6200 8300 1700 2600 5600 7500 1600 2400 5150 6850 1500 2300 4850 6500



Cone shaped bur in drill press deburring drilled holes in plate.



Nicholson Carbide Burs

The carbide bur is one of the most recent developments among modern cutting tools. It has tremendous possibilities for reducing burring costs in its particular applications, foremost of which is likely to be found on long production runs.

For example, it has been demonstrated that a carbide bur will last up to one hundred times as long as a high speed steel bur of corresponding shape and size. On the other hand, it costs about five times more. Assuming that the production life of the carbide bur is seventy-five times greater and the cost five more, there is a ratio of fifteen to one in its favor. And there are other factors.

The carbide bur may be used on hard or soft materials with equally good results. Made of extremely hard material, the flutes of the carbide bur will retain their maximum cutting efficiency a great deal longer than those made of high speed steel, thus eliminating change-over costs. A skillful operator, especially if he is working on a piece or bonus system, appreciates the fact that his tool is working at full efficiency and has not reduced his earning power because it is partly worn out—although not sufficiently worn to be discarded.

Anatomy

The anatomy of the carbide bur is much the same as that of the high speed bur, the principal difference lying in the fact that the former is made of carbide. Of course, the rake and coarseness of teeth are changed somewhat to conform to the peculiarities of carbide, the negative rake rather than the radial producing a construction of the greatest strength.

Most carbide burs have index fluting, meaning that all flutes converge to a common point.

Diamond cut carbide burs are recommended for tough die steels. These "double-cut" burs have flutes that intersect each other. These throw off small, irregular particles, rather than sharp pointed slivers.

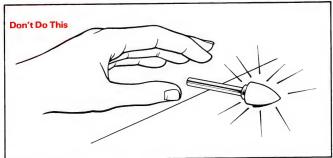
The carbide used in these burs has the highest Rockwell Hardness consistent with necessary toughness. While every effort is made to combine hardness and toughness, carbide burs are nevertheless relatively brittle and must be treated more gingerly than ordinary burs. They cannot stand as much abuse. Under no circumstances must they be tossed onto a bench or into a tool box where their cutting edges may be damaged.

Remember that if one carbide bur is injured, the loss is about fifteen times as great as that of a high speed bur—and savings are greatly reduced.

Coarseness Chart

Rotary Files			Ground Burs H.S.		
Teeth Per	Inch	Dia.	Flutes Per	Circumference	
Coarse	Medium	"/mm	Coarse	Medium	
14	20	½"/3mm	7	10	
14	20	3/4.7mm	9	13	
14	20	1"/6mm	10	16	
12	18	5"/8mm	12	18	
12	18	3/ /10mm	14	20	
12	18	7/1/11mm	15	22	
12	18	½"/13mm	16	24	
12	18	§"/16mm	18	27	
12	18	₹"/19mm	20	30	
12	18	7"/22mm	22	33	
10	15	1"/25mm	24	36	
10	15	1½"/28mm	26	39	
	Coarse 14 14 14 12 12 12 12 12 12 12	14 20 14 20 14 20 12 18 12 18 12 18 12 18 12 18 12 18 12 18 12 18 12 18 12 18 10 15	Teeth Per Inch Dia. Coarse Medium "/mm 14 20 ⅓ "/3mm 14 20 ⅓ "/4.7mm 14 20 ⅙ "/6mm 12 18 ⅙ "/8mm 12 18 ⅙ "/10mm 12 18 ⅙ "/11mm 12 18 ⅙ "/13mm 12 18 ⅙ "/16mm 12 18 ⅙ "/19mm 12 18 ⅙ "/22mm 10 15 1"/25mm	Coarse Medium "/mm Coarse 14 20 \frac{1}{8}"/3mm 7 14 20 \frac{1}{4}"/6mm 9 14 20 \frac{1}{4}"/6mm 10 12 18 \frac{1}{5}"/8mm 12 12 18 \frac{3}{8}"/10mm 14 12 18 \frac{7}{5}"/11mm 15 12 18 \frac{1}{2}"/13mm 16 12 18 \frac{3}{8}"/16mm 18 12 18 \frac{3}{4}"/19mm 20 12 18 \frac{2}{8}"/22mm 22 10 15 1"/25mm 24	

Take Care of Your Tools



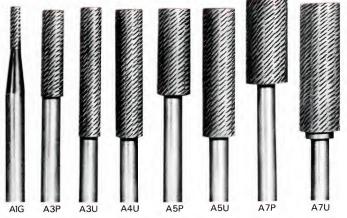
Protect your eyes— always wear safety goggles.



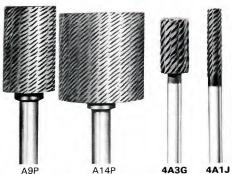
High speed steel rotary files

Hand cut rotary files with $\frac{1}{4}$ "/6mm shanks. Stocked in Coarse, Medium and some fine cuts. Note: A limited number of files available in $\frac{1}{4}$ "/3mm shanks. For easier identification of $\frac{1}{4}$ "/3mm file, code numbers are in bold.

Cylindrical shape-flat end hand cut style "A"



Ref. No.	Dia. x length "/mm x "/mm	Catalog &	Nida/Sida Nu Medium	mbers Fine	Shank "/mm
A1G	$\frac{1}{8}/3 \times \frac{1}{2}/13$	50001*	50003*	_	1/6
A3P	¼/6 x 1/25	50013* 50019	50015* 50021	_	1/6
A3U	¼/6 x 1½/38	50025	50027	_	1/6
A4U	5/8 x 1½/38	_	50033	_	<u></u> 1∕6
A5P	₹/9 x 1/25	50037	50039	_	1/6
A5U	3/9 x 1½/38	50043	50045	_	1/6
A7P	½/13 x 1/25	50049	50051	50053	1/6
A7U	½/13 x 1½/38	50055	50057	50059	1 /6



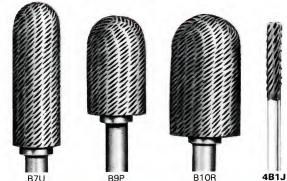
Ref.	Dia. x length	Catalog & Nida/Sida Numbers			Shank
No.	"/mm x "/mm	Coarse	Medium	Fine	"/mm
A9P	§/16 x 1/25	_	50063	_	<u></u> 4/6
A10K**	¾/19 x ¾/19	_	50075	_	 ₄/6
A14P	1/25 x 1/25	_	50081	_	1 /6
4A3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	51029	_	½/3
4A1J	½/3 x ½/76	_	51031	_	1/3

^{*} Have uncut ends.

Cylindrical shape-radius end hand cut style "B"



Ref. No.	Dia. x length "/mm x "/mm	Catalog & Nida Coarse	a/Sida Numbers Medium	Shank "/mm
B1G	½/3 x ½/13	Codisc	50087	1/6
B3P	1/6 x 1/25	50091	50093	1/6
B3U	½/6 x 1½/38	50097	50099	1/6
B4U	5/8 x 1½/38	_	50105	1/6
B5P	3/9 x 1/25	50109	50111	1/6
B5U	3/9 x 1½/38	_	50117	1/6
B7P	½/13 x 1/25	50121	50123	1/6
B7U	½/13 x 1½/38		50129	1/6



4B1J	1/3 x 1/2 1/3 x 1		51035	1/3
B10R	3/19 x 11/32	_	50141	 ₄/6
B9P	§/16 x 1/25		50135	<u></u> 4/6
Ref. No.	Dia. x length "/mm x "/mm	Catalog & Nida/Sida Numbers Coarse Medium		Shank "/mm

^{* *} Not illustrated

Ball shape hand cut style "C"



Ref.	Dia.	Catalog 8	Catalog & Nida/Sida Numbers			
No.	"/mm	Coarse	Medium	Fine	"/mm	
C1	½/3	_	50147	_	1/6	
C2	3 ₁₆ /5	_	50153	-	<u></u> 4/6	
C3	1/6	50157	50159	50161	1/6	
C4	5 ₆ /8	_	50165		1/6	
C5	3 /9	50169	50171	-	1/6	
C7	1/13	_	50177	_	1/6	
C9	§/16	_	50183	_	1/6	



Ref.	Dia.	Catalog 8	Nida/Sida Nur	nbers	Shank
No.	"/mm	Coarse	Medium	Fine	"/mm
C10	₹/19	_	50189	_	<u>1</u> /6
C14	1/25	_	50195	_	1/6
C14 4C5	3/9	_	51039	_	1/3
4C3	1/6	_	51041	_	1/3

Oval shape hand cut style "D"



Ref. No.	Dia. x length	Catalog & Nida/Sida Numbers Coarse Medium		Shank "/mm
	/IIIII X /IIIIII	Coarse		
D3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	50201	1/6
D5K	3/9 x 3/19	_	50207	1/6
D7M	½/13 x ½/22	_	50219	1/6
D9N	§/16 x 1 §/24	50223	50225	<u></u> 4/6





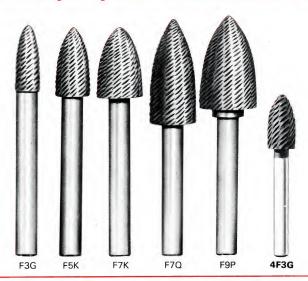
Ref.	Dia. x length	Catalog & Nida/Sida Numbers		Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
D14S	1/25 x 13/35	_	50237	1/6
4D3G	½/6 x ½/13	_	51043	1/3

Tree shape-radius end hand cut style "E"



Ref.	Dia. x length	Catalog & Nid	a/Sida Numbers	Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
E3K	½/6 x ¾/19	50241	50243	1 /6
E5K	3/9 x 3/19	_	50249	1/6
E7Q	$\frac{1}{2}/13 \times 1\frac{1}{8}/28$	50253	50255	1/6
E10P	₹/19 x 1/25	-	50261	1/6

Tree shape-pointed end hand cut style "F"



Ref.	Dia. x length	Catalog & Nida/Sida Numbers		Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
F3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	50273	1/6
F5K	₹/9 x ₹/19	50277	50279	1/6
F7K	$\frac{1}{2}/13 \times \frac{3}{4}/19$	_	50285	 ₄/6
F7Q	½/13 x 1½/38	_	50291	4/6
F9P	§/16 x 1/25	_	50297	⅓ /6
4F3G	½/6 x ½/13	_	51047	½/3

Cone shape hand cut style "G"



Ref. No.	Dia. x length "/mm x "/mm	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
G3G	½/6 x ½/13	22°	50309	1/6
G3K	½/6 × ¾/19	14°	50315	1/6
G3P	½/6 x 1/25	11°	50321	1/6
G3R	½/6 x 1½/32	8°	50327	1/6
G4P	5 ₁₆ /8 x 1/25	14°	50339	1/6

Continued on next page.

Cone shape hand cut style "G" cont.



Ref. No.	Dia. x length "/mm x "/mm	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
G7M	$\frac{1}{2}/13 \times \frac{7}{8}/22$	28°	50351	1/6
G9P	5/16 x 1/25	32°	50357	1/6
4G1H	$\frac{1}{8}/3 \times \frac{9}{16}/14$	_	51053	1/3
4G3C	1/6 x 1/6	60°	51051	1/3
4G3G	½/6 x ½/13	25°	51049	1/3

Cone shape 90° angle hand cut style "J"



Ref. No.	Dia. "/mm.	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
J7	1/13	90°	50399	1/6
J9	5 /16	90°	50405	1/6
J10	₹/19	90°	50411	$\frac{1}{4}/6$
J14	1/25	90°	50417	1/6

Flame shape hand cut style "K"



Ref.	Dia. x length	Cat. & N/S Nos.	Shank
No.	"/mm x "/mm	Medium	"/mm
К9Т	$\frac{5}{8}/16 \times 1\frac{7}{16}/36$	50429	1/6

Bi-Shape hand cut style "L"



Ref. No.	Dia. x length "/mm x "/mm x "/mm	Cat & N/S Nos Medium	Shank "/mm
L3P	1/6 x 1/25 ₹/22 Radius	50441	1/6
L4Q	5/8 x 11/28 11/28 Radius	50447	1/6

Inverted cone shape 33° included angle hand cut style "M"



Ref.	Dia. x length	Catalog & Nida	/Sida Numbers	Shank	
No.	"/mm x "/mm	Coarse	Medium	"/mm	
M10J	¾/19 x ½/16	50457	50459	<u></u> 1∕6	

Barrel shape hand cut style "CC"



Ref.	Dia. x length	Catalog & Nida/Sida Numbers	Shank
No.	"/mm x "/mm	Medium	"/mm
CC7P	½/13 x 1/25	50477	1/6

Cylindrical shape double taper 60° included angle hand cut style "DD"



Ref.	Dia. x length	Catalog & Nida/Sida Numbers	Shank
No.	"/mm x "/mm	Medium	"/mm
DD15E	1½/28 x ¾/9	50483	1/6

Cylindrical shape radius end and edge

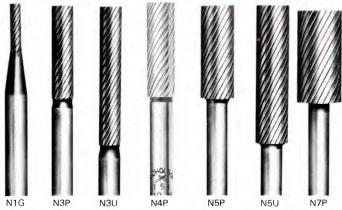


Ref.	Dia. x length	Catalog & Nida/Sida Numbers	Shank
No.	"/mm x "/mm	Medium	"/mm
4H9A	5/16 x 1/3	51037	1/3

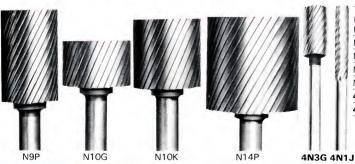
High speed steel ground burs

Ground burs with $\frac{1}{4}$ "/6mm shanks. Stocked in coarse and medium cuts. Note: limited number of burs available with $\frac{1}{8}$ "/3mm shanks for use with portable hand tools (electric or air), drill press or felxible shaft. For easier identification of $\frac{1}{8}$ "/3mm burs, code numbers are in bold.

Cylindrical shape-flat end ground bur style "N"



Ref.	Dia. x length	Catalog & Nida/Sida Numbers		Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
N1G	$\frac{1}{8}/3 \times \frac{1}{2}/13$	_	50489	1/6
N3P	$\frac{1}{4}/6 \times 1/25$	50499	50501	1/6
N3U	$\frac{1}{4}/6 \times 1\frac{1}{2}/38$	_	50513	1/6
N4P	5 ₁₆ /8 x 1/25	_	50525	1/6
N5P	₹/9 x 1/25	50535	50537	1/6
N5U	3/9 x 1½/38	_	50549	1/6
N7P	½/13 x 1/25	50559	50561	1/6



Ref.	Dia. x length	Catalog & Nida	a/Sida Numbers	Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
N9P	§/16 x 1/25	_	50573	1/6
N10G	$\frac{3}{4}/19 \times \frac{1}{2}/13$	_	50585	1/6
N10K	$\frac{3}{4}/19 \times \frac{3}{4}/19$	50595	50597	1/6
N14P	1/25 x 1/25	_	50609	1/6
4N3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	51065	½/3
4N1J	½/3 x ½/16	_	51067	1/3

Cylindrical shape-radius end ground bur style "P"









Ref.	Dia. x length	Catalog & Nida/Sida Numbers		Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
P1G	$\frac{1}{8}/3 \times \frac{1}{2}/13$	_	50621	1/6
P3P	⅓/6 x 1/25	50625	50627	1/6
P3U	$\frac{1}{4}/6 \times 1\frac{1}{2}/38$	_	50633	1/6
P5P	₹/9 x 1/25	_	50639	1/6
P5U	3/9 x 1½/38	_	50645	1/6



P10R

4P1J

4V9A

Ref.	Dia. x length	Catalog & Nida/Sida Numbers		Shank	
No.	"/mm x "/mm	Coarse	Medium	"/mm	
P7P	½/13 x 1/25	50649	50651	1/6	
P9P	§/16 x 1/25	_	50657	1/6	
P10R	₹/19 x 1₹/32	_	50663	1/6	
4P1J	½/3 x ½/16	_	51071	½/3	
4V9A	5/16 x 1/3	_	51073	½/3	

Ball shape ground bur style "Q"



Ref. No.	Dia. "/mm	Catalog & Nida/Sida Numbers Medium	Shank "/mm
Q1	1/3	50669	1/6
Q2	3 ₁₆ /5	50675	1/6
Q3	1/6	50681	 ₄/6
Q4	-5-/8	50687	1/6
Q5	₹/9	50693	1/6
Q7	1 /13	50699	1 /6



Ref.	Dia. "/mm	Catalog & Nida/Sida Numbers Medium	Shank "/mm
Q9	§/16	50705	1/6
Q10	3 /19	50711	1/6
Q14	1/25	50717	1/6
4Q5	₹/9	51075	½/3
4Q3	1/6	51077	1/3

Oval shape ground bur style "R"

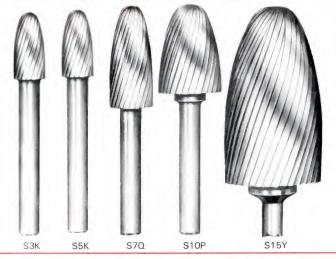


4R3G

Ref. No.	Dia. x length "/mm x "/mm	Catalog & Nida/Sida Numbers Medium	Shank "/mm
R3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	50723	1/6
R5K	¾/9 x ¾/19	50729	1 /6
R6L	$\frac{7}{16}/11 \times \frac{13}{16}/21$	50735	1 /6
R7M	½/13 x ½/22	50741	1/6

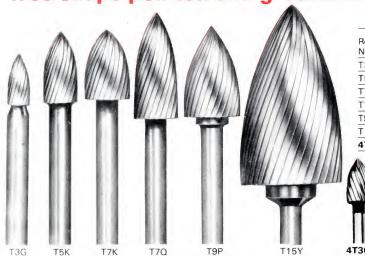
Ref. No.	Dia. x length "/mm x "/mm	Catalog & Nida/Sida Numbers Medium	Shank "/mm
R9N	\$/16 x 15/24	50747	1/6
R10P	₹/19 x 1/25	50753	1/6
R14S	1/25 x 13/35	50759	1/6
4R3G	½/6 x ½/13	51079	½/3

Tree shape radius end ground bur style "S"



Ref.	Dia. x length	Catalog & Nida	/Sida Numbers	Shank
No.	"/mm x "/mm	Coarse	Medium	"/mm
S3K	$\frac{1}{4}/6 \times \frac{3}{4}/19$	50769	50771	1/6
S5K	3/9 x 3/19	_	50777	1/6
S7Q	$\frac{1}{2}/13 \times 1\frac{1}{8}/28$	50781	50783	1/6
S10P	₹/19 x 1/25	_	50789	1/6
S15Y	1½/28 x 2/50	_	50795	1/6

Tree shape pointed end ground bur style "T"

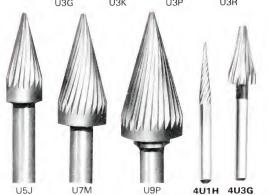


Ref.	Dia. x length	Catalog & Nid	Catalog & Nida/Sida Numbers	
No.	"/mm x "/mm	Coarse	Medium	"/mm
T3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	50801	1/6
T5K	3/9 x 3/19	_	50807	1/6
T7K	$\frac{1}{2}/13 \times \frac{3}{4}/19$	_	50813	1/6
T7Q	$\frac{1}{2}/13 \times 1\frac{1}{8}/28$	_	50819	1/6
T9P	§/16 x 1/25	_	50825	1/6
T15Y	1½/28 x 2/50	_	50831	1/6
4T3G	$\frac{1}{4}/6 \times \frac{1}{2}/13$	_	51083	½/3

Cone shape ground bur style "U"



Ref.	Dia. x length "/mm x "/mm	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
U3G	½/6 x ½/13	22°	50837	1/6
U3K	½/6 x ¾/19	14°	50843	1/6
U3P	½/6 x 1/25	11°	50849	1/6
U3R	½/6 x 1½/32	8°	50855	1/6
U4P	5/8 x 1/25	14°	50867	1/6



Ref. No.	Dia. x length "/mm x "/mm	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
U5J	3/9 x 5/16	28°	50873	1/6
U7M	$\frac{1}{2}/13 \times \frac{7}{8}/22$	28°	50879	 ₄/6
U9P	§/16 x 1/25	32°	50885	1/6
4U1H	½/3 x ½/14	8°	51089	1/3
4U3G	½/6 x ½/13	25°	51085	½/3
4U3C*	1/6 x 1/6		51087	1/3

^{*}Not illustrated

Cone shape 60° included angle ground bur style "V"



Ref. No.	Dia. "/mm	Included Angle	Cat. & N/S Nos. Medium	Shank "/mm
V7	½/13	60°	50897	1/6
V9	§/16	60°	50903	1/6
V10	3 /19	60°	50909	1/6

Cone shape 90° included angle ground bur style "W"



Ref.	Dia.	Included	Cat. & N/S Nos.	Shank
No.	"/mm	Angle	Medium	"/mm
W7	½/13	90°	50927	1/6
W14	1/25	90°	50945	1/6

Flame shape ground bur style "X"



Ref.	Dia. x length	Cat. & N/S Nos.	Shank
No.	"/mm x "/mm	Medium	"/mm
X9M	§/16 x ₹/22	50951	1/6
X9T	5/16 x 1 ⁷ / ₁₆ /36	50957	<u></u> 4/6
X10W	3/19 x 13/44	50963	1/6
4X3G	½/6 x ½/13	51095	½/3

Bi-shape ground bur style "Y"



Ref. No.	Dia. x length "/mm x "/mm x "/mm	Catalog & N/S Nos. Medium	Shank "/mm
Y3P	1/6 x 1/25 x ₹/22 Radius	50969	1 /6
Y4Q	$\frac{5}{16}/8 \times 1\frac{1}{8}/29 \times 1\frac{1}{8}/29$ Radius	50975	1 /6

Y4Q

Inverted cone shape 33° included angle ground bur style "Z"



Ref.	Dia. x length	Catalog & N/S Nos.	Shank
No.	"/mm x "/mm	Medium	"/mm
Z10J	₹/19 x ₹/16	50987	1/6

Concave shape type 1 - 2549 radius ground bur style "NN"



Ref.	Dia. x length	Catalog & N/S Nos.	Shank
No.	"/mm x "/mm	Medium	"/mm
NN10J	₹/19 x ₹/16	50999	1/6

Barrel shape ground bur style "QQ"



Ref.	Dia. x length	Catalog & N/S Nos.	Shank
No.	"/mm x "/mm	Medium	"/mm
QQ7P	½/13 x 1/25	51011	1/6

Cylindrical shape double taper 60° included angle ground bur style "RR"



Ref.	Dia. x length	Catalog & N/S Nos.	Shank
	"/mm x "/mm	Medium	"/mm
RR15E	1½/28 x ⅓/9	51017	1/6

Flat top ball shape



Ref.	Dia. x length "/mm x "/mm	Catalog & N/S Nos.	Shank
No.		Medium	"/mm
4Y5C	$\frac{3}{8}/9 \times \frac{7}{32}/5.5$	51097	1/3

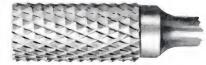
Tungsten carbide burs

Nicholson carbide burs are precision ground from tungsten carbide blanks. All our carbide burs which have $\frac{1}{4}^{\prime\prime}$ /6mm diameter heads or less are made from solid carbide, which eliminates the possibility of the heads of these small tools snapping off at the braze. Burs over $\frac{1}{4}^{\prime\prime}$ /6mm diameter are made with carbide heads brazed to heat treated steel shank 2 inches/50mm long.

Nicholson carbide burs can be reground many times at a small part of the original cost of the tool.



Standard Cut



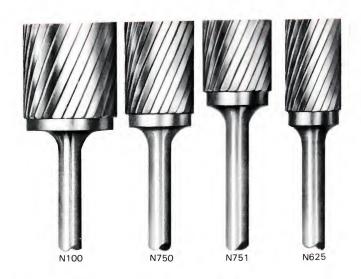
Diamond Cut

Recommended speeds on page 51.

Carbide burs with ½"/6mm shanks

Note: A limited number of Carbide burs are available with $\frac{1}{8}''/3mm$ shanks. For easier identification of $\frac{1}{8}$ '/3mm burs, code numbers are in bold.

Cylindrical flat end



			Catalog			
Ref. No.	Dia. x length "/mm x "/mm	Standard	Diamond Cut Std.	Diamond end Cut Std.	End Cut Std.	Shank "/mm
N100	1/25 x 1/25	51421	_	_	_	1/6
N750	₹/19 x 1/25	51397	_		_	1/6
N751	¾/19 x ¾/19	51373	_	_	_	1/6
N625	§/16 x 1/25	51325	51337	_	_	16



•						11	111 1	all was
PW	N5KW *1	N312	N3JW	N187	N125	4NBW	4N-	126
						4	NCW	8N-250

		Catalog & Nida/Sida Numbers					
Ref. No.	Dia. x length "/mm x "/mm	Standard	Diamond Cut Std.	Diamond end Cut Std.	End Cut Std.	Shank " imm	
N7PW*	½/13 x 1/25	51301	51313	51319	51307	16	
N5KW*	₹/9 x ₹/19	51253	51265	_	51259	1/6	
N312*	5 ₁₆ /8 x ₹/19	51229	_	_	51235	16	
N3JW*	1/6 x 8/16	51205	51217	_	51211	1/6	
N187	3/5 x 5/16	51181	51193	_	_	1/6	
N125	$\frac{1}{8}/3 \times \frac{1}{2}/13$	51133		_	_	1/6	
4NBW	$\frac{1}{8}/3 \times \frac{9}{16}/14$	52501	_	_	_	$\frac{1}{8}/3$	
4NCW	$\frac{3}{32}/2 \times \frac{7}{16}/11$	52525	_	_	-	1/3	
4N-126	$\frac{1}{8}/3 \times \frac{9}{16}/14$	52573	_	_	_	1/3	
8N-250	½/6 x ½/13	52975	_	_	_	1/3	

*Can be furnished with cut end Note: ½"/3mm burs not illustrated.

Cylindrical radius end



Ref. Dia. x length		Catalog & N	Catalog & Nida/Sida Numbers		
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm	
P750	₹/19 x 1/25	51553	_	1/6	
P9PW	§/16 x 1/25	51541	_	1 /6	
P7PW	½/13 x 1/25	51529	51535	1 /6	
P5KW	₹/9 x ₹/19	51505	51511	1/6	
P312	5/8 x 3/19	51493	_	¥/6	

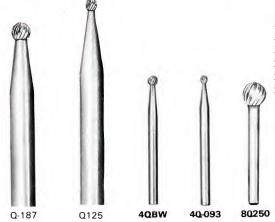


Ref.	Dia. x length	Catalog & f	Nida/Sida Numbers	Shank
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm
P3JW	1/6 x 5/16	51481	51487	1 /6
P187	$\frac{3}{16}/5 \times \frac{5}{8}/16$	51469	-	 ₹/6
P156	$\frac{5}{32}/4 \times \frac{5}{8}/16$	51457	_	1 /6
P125	½/3 x ½/13	51445	_	1/6
4PBW	$\frac{1}{8}/3 \times \frac{9}{16}/14$	52579	_	1 /3
4PCW	$\frac{3}{32}/2 \times \frac{7}{16}/11$	52591	_	1/3

Ball shape



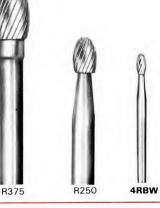
Ref.	Dia. x length	Catalog & N	Shank	
No.	"/mm	Standard	Diamond Cut Std.	"/mm
Q10W	3 /19	51661	_	1/6
Q9W	_통 /16	51649	_	1/6
Q7W	½/13	51637	51643	1/6
Q5W	3/9	51613	51619	1/6
Q312	5 ₁₆ /8	51601	_	1 /6
Q3W	1/6	51589	51595	1/6



Dia. x length	Catalog & f	Shank	
"/mm	Standard	Diamond Cut Std.	"/mm
3 16/5	51577	_	1/6
1/3	51565	_	1/6
1/3	52603	_	1/3
$\frac{3}{32}/2$	52615	_	₹/3
1/6	53023	_	½/3
	"/mm 3/6/5 1/3 1/3 3/2/2	"/mm Standard \[\frac{1}{18}/5 \\ 51577 \\ \frac{1}{8}/3 \\ 51565 \\ \frac{1}{8}/3 \\ 52603 \\ \frac{2}{32}/2 \\ 52615 \]	"/mm Standard Diamond Cut Std. 13/5 51577 — 13/3 51565 — 13/3 52603 — 33/2 52615 —

Oval shape





Ref. Dia. x length		Catalog & ↑	Shank	
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm
R9PW	§/16 x 1/25	51721	_	1/6
R7MW	½/13 x ½/22	51709	51715	$\frac{1}{4}/6$
R375	₹/9 x ₹/16	51697	51703	1/6
R250	1/6 x 3/10	51685	_	1/6
4RBW	$\frac{1}{8}/3 \times \frac{7}{32}/5.5$	52627	_	½/3

Flame shape



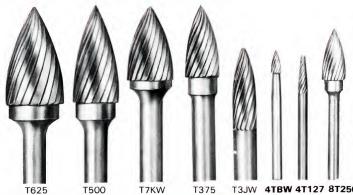
Ref.	Dia. x length	Catalog & Nida/Sida Numbers		
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm
X500	½/13 x 1½/32	51757	51763	1/6
X312	5 ₆ /8 x 3/19	51745	_	1/6
4XBW	½/3 x ½/6	52747	_	½/3

Tree shape radius end



Ref.	Dia. x length	Catalog & f	Shank	
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm
S752	₹/19 x 1	51973	_	1/6
S625	§/16 x 1/25	51961	_	 ₄/6
S7PW	½/13mm x 1/25	51949	_	1/6
S5KW	₹/9 x ₹/19	51913	51919	⅓ /6
S3JW	½/6 x ½/16	51901	51907	1/6
4S125	½/3 x ½/13	52639	_	1/3
4SBW	½/3 x ½/6	52651	_	1/3

Tree shape pointed end

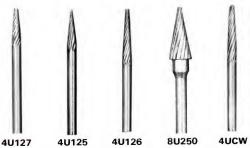


Ref.	Dia. x length	Catalog & N	lida/Sida Numbers	Shank
No.	"/mm x "/mm	Standard	Diamond Cut Std.	"/mm
T625	§/16 x 1/25	52069	_	1/6
T500	½/13 x 1/25	52057	52063	1/6
T7KW	½/13 x ¾/19	52045	_	1/6
T375	3/9 x 3/19	52033	52039	1/6
T3JW	1/6 x 1/6 x 1/6	52009	52015	1/6
4TBW	½/3 x ½/6	52663	_	1 /3
4T127	½/3 x ¾/9	52687	_	1 /3
8T250	1/6 x 1/13	53059	_	1/3

Cone shape



Ref. No.	Dia. "/mm	Included Angle	Cat. & N/S Nos. Standard	Shank "/mm
U-500	$\frac{1}{2}/13 \times \frac{7}{8}/22$	28°	52153	1/6
U375	3/9 x 5/16	28°	52141	1/6
U250	½/6 x 1/25	10°	52129	 ₄/6
U3JW	1/6 x 3/19	14°	52117	1/6
U252	½/6 x ½/13	22°	52105	1/6



Dia. "/mm	Included Angle	Cat. & N/S Nos. Standard	Shank "/mm
½/3 x ¾/9	12°	52699	½/3
$\frac{1}{8}/3 \times \frac{7}{16}/11$	14°	52711	½/3
½/3 x ½/16	7°	52723	1/3
½/6 x ½/13	22°	53071	1/3
$\frac{1}{8}/3 \times \frac{1}{2}/13$	8°	52831	½/3
	"/mm $\frac{1}{6}/3 \times \frac{2}{6}/9$ $\frac{1}{6}/3 \times \frac{7}{76}/11$ $\frac{1}{6}/3 \times \frac{2}{6}/16$ $\frac{1}{6}/6 \times \frac{1}{2}/13$	"/mm Angle $\frac{1}{8}/3 \times \frac{2}{8}/9$ 12° $\frac{1}{8}/3 \times \frac{7}{16}/11$ 14° $\frac{1}{8}/3 \times \frac{5}{8}/16$ 7° $\frac{1}{4}/6 \times \frac{1}{2}/13$ 22°	"/mm Angle Standard $\frac{1}{8}/3 \times \frac{3}{8}/9$ 12° 52699 $\frac{1}{8}/3 \times \frac{7}{16}/11$ 14° 52711 $\frac{1}{8}/3 \times \frac{5}{8}/16$ 7° 52723 $\frac{1}{4}/6 \times \frac{1}{2}/13$ 22° 53071

Inverted cone

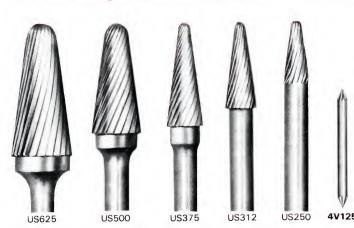
4U127



Ref. No.	Dia. x length "/mm x "/mm	Included Angle	Cat. & N/S No. Standard	Shank "/mm
M500	$\frac{1}{2}/13 \times \frac{1}{2}/13$	28°	51817	1 /6
M250	$\frac{1}{4}/6 \times \frac{5}{16}/8$	10°	51793	1/6
4ZBW	$\frac{1}{8}/3 \times \frac{3}{16}/5$	10°	52771	1/3

Cone shape radius end 14° included angle

4ZBW



Ref.	Dia. x length "/mm x "/mm	Catalog & N Standard	Nida/Sida Numbers Diamond Cut Std.	Shank "/mm
No.			Diamond out ota:	
US625	§/16 x 1 ½/33	52477		1/6
US500	$\frac{1}{2}/13 \times 1\frac{1}{8}/28$	52465	52471	<u></u> 4/6
US375	$\frac{3}{8}/9 \times 1\frac{1}{16}/27$	52453	52459	1/6
US312	$\frac{5}{16}/8 \times \frac{7}{8}/22$	52441	_	1/6
US250	1/6 x 5/16	52429	_	1/6
4V125	½/3 × 60°	52735	_	½/3

Recommended speeds for Nicholson® carbide burs

Table No. 1 Approx. recommended speeds for malleable iron—steel welds—cast iron—tool steels—die steels—naval bronze—brass—aluminum, etc.

Table No. 2 Approx. recommended speeds for stainless steels

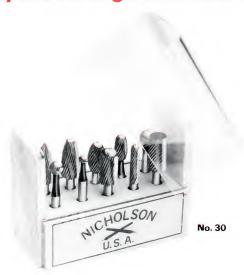
NOTE: Diamond Cut burs—reduce speeds by approx. $\frac{1}{3}$ to $\frac{1}{2}$ —in corresponding Tables and Cuts shown.

Caution: Be sure to chuck bur shank true and to full capacity of the machine chuck.

Important: Recommended speeds are applicable only if bur is chucked to full length of shank supplied.

Bur	R.P.M. for	Standard
Dia.	Table	Table
"/mm	No. 1	No. 2
$\frac{1}{16}/1.5$	50,000	75,000
$\frac{3}{32}/2$	40,000	60,000
1/3	35,000	53,000
3 ₁₆ /5	25,000	38,000
1/6	22,000	33,000
516/8	20,000	30,000
3/10	18,000	27,000
7 /11	17,000	26,000
½/13	16,000	24,000
§/16	15,000	23,000
3 /19	14,000	21,000
7/22	13,000	20,000
1/25	12,000	18,000

Rotary files and ground burs kits





Hotakit 1	for rotary t	iles - No. 30 (5 i 107) ‡ "/omm snanks
Ref.		
No.	Qty	Description
A3P	1	Cylindrical shape — flat end
A7P	1	Cylindrical shape — flat end
A10K	1	Cylindrical shape – flat end
C3	1	Ball shape
C5	1	Ball shape
D7M	1	Oval shape
F7Q	1	Tree shape – pointed end
G3R	1	Cone shape
L3P	1	Ri-shane

Inverted cone shape

Ref. No.	Qty	Description	
N7P	1	Cylindrical shape – flat end	
P3P	1	Cylindrical shape – Radius end	
P7P	1	Cylindrical shape – Radius end	
Q3	1	Ball shape	
Q5	1	Ball shape	
Q7	1	Ball shape	
R5K	1	Oval shape	
R7M	1	Oval shape	
S7Q	1	Tree shape - Radius end	
T7Q	1	Tree shape - Pointed end	

Ref.		
No.	Qty	Description
Ground	Burs	
N7P	1	Cylindrical shape – flat end
P7P	1	Cylindrical shape – radius end
Q7	1	Bell shape
S7Q	1	Tree shape – radius end
T7Q	1	Tree shape – pointed end
Rotary f	iles	
A7P	1	Cylindrical shape – flat end
C5	1	Ball shape
D7M	1	- Oval shape
G3R	1	Cone shape
F7Q	1	Tree shape – pointed end

Select-O-Stand

$RD45 - \frac{1}{4}$ "/6mm shanks

A fast selling group of 45 high speed steel files and burs, all in one bright display designed for easy identification of each tool head. Contains 26 hand cut rotary files and 19 ground burs.



The contents of the RD45 is made up of one each of the following burs:

Hand Cut Rotary Files

Cat /N/S No. /No	Ref. No.	Size " x "/mm x mm	Cat. /N/S No /No.	Ref. No.	Size " x "/mm x mm
	al shapes	, flat ends	Ball shape	es	
50015	A3P	1 x 1/6 x 25	50159	C3	1/6
50027	A3U	$\frac{1}{4} \times 1\frac{1}{2}/6 \times 38$	50171	C5	₹/1O
50033	A4U	$\frac{5}{16} \times 1\frac{1}{2}/8 \times 38$	50177	C7	$\frac{1}{2}/13$
50039	A5P	3 x 1/10 x 25			
50045	A5U	$\frac{3}{8} \times 1\frac{1}{2}/10 \times 38$	Tree-shap	ed, radiu	ıs ends
50051	A7P	$\frac{1}{2} \times 1/13 \times 25$	50243	E3K	$\frac{1}{4} \times \frac{3}{4} / 6 \times 19$
50057	A7U	$\frac{1}{2} \times 1\frac{1}{2}/13 \times 38$	50249	E5K	$\frac{3}{8} \times \frac{3}{4} / 10 \times 19$
50063	A9P	§ x 1/16 x 25	50255	E7Q	$\frac{1}{2} \times 1\frac{1}{8}/13 \times 28$
50075	A10K	$\frac{3}{4} \times \frac{3}{4} / 19 \times 19$			
50081	A14P	1 x 1/25 x 25	Tree-shap	ed, poin	ted ends
			50273	F3G	$\frac{1}{4} \times \frac{1}{2} / 6 \times 13$
Cylindrica	al shapes	, radius ends	50279	F5K	$\frac{3}{8} \times \frac{3}{4} / 10 \times 19$
50093	ВЗР	$\frac{1}{4} \times \frac{1}{6} \times 25$	50291	F7Q	$\frac{1}{2} \times 1\frac{1}{2}/13 \times 28$
50111	B5P	3 x 1/10 x 25			
50123	B7P	$\frac{3}{2} \times 1/13 \times 25$	Cone sha	ped	
			50309	G3G	$\frac{1}{4} \times \frac{1}{2} / 6 \times 13$
			50321	G3P	$\frac{1}{4} \times \frac{1}{6} \times 25$
			50339	G4P	$\frac{5}{16} \times 1/8 \times 25$
			50351	G7M	$\frac{1}{2} \times \frac{7}{8}/13 \times 22$
Ground	Burs				
0 . 101.0	D (C:	C-1 INVC	D-4	Cizo

Cat./N/S	Ref	Size	Cat./N/S	Ref.	Size
No /No.	No.	" x "/mm x mm	No./No.	No.	" x "/mm x mm
Cylindrica	al shape, f	lat end	Tree shap	ed, radius	s end
50501	N3P	$\frac{1}{4} \times 1/6 \times 25$	50777	S5K	$\frac{3}{8} \times \frac{3}{4}/10 \times 19$
50537	N5P	$\frac{3}{8} \times 1/10 \times 25$	50783	S7Q	$\frac{1}{2} \times 1\frac{1}{8}/13 \times 28$
50561	N7P	$\frac{1}{2}$ x 1/13 x 25	50789	S10P	₹ x 1/19 x 25
50609	N14P	1 x 1/25 x 25			
			Tree shap	ed, point	ed end
Cylindrica	al shape, r	adius end	50801	T3G	$\frac{1}{4} \times \frac{1}{2} / 6 \times 13$
50627	P3P	$\frac{1}{4} \times 1/6 \times 25$	50807	T5K	3 x 3/10 x 19
50639	P5P	3 x 1/10 x 25	50819	T7Q	$\frac{1}{2} \times 1\frac{1}{8}/13 \times 28$
50651	P7P	½ x 1/13 x 25			
50663	P10R	$\frac{3}{4} \times 1\frac{1}{4}/19 \times 32$	Cone sha	ped	
			50855	U3R	$\frac{1}{4} \times 1\frac{1}{4}/6 \times 32$
Ball shape	ed		50879	U7M	$\frac{1}{2} \times \frac{7}{8} / 13 \times 22$
50681	Q3	1/6			
50693	Q5	3/10			

Carbiset No. 100 (53543) solid tungsten carbide $\frac{1}{8}$ "/3mm shanks



Ref No.	Qty.	Description
4NBW	1	Cylindrical flat end
4NCW	1	Cylindrical flat end
4PBW	1	Cylindrical radius end
4PCW	1	Cylindrical radius end
4QBW	1	Ball shape
4RBW	1	Oval shape
4SBW	1	Tree shape radius end
4TBW	1	Tree shape pointed end
4T127	1	Tree shape pointed end
4UCW	1	Cone shape
4XBW	1	Flame shape
4ZBW	1	Inverted cone

Rotasets for $\frac{1}{8}$ "/3mm shanks



Rotaset for ground burs No. 55 (51115)

Ref.			
No.	Qty	Description	
4T36	1	Tree shape - pointed end	
4R3G	1	Oval shape	
405	1	Ball shape	
4U1H	1	Cone shape	
4X3G	1	Frame shape	
4N3G	1	Cylindrical shape – flat end	
4P1J	1	Cylindrical shape – radius end	
4V9A	1	Cylindrical shape – radius end and edge	

Rotaset for rotary files No. 66 (51117)

Ref.		
No.	Qty	Description
F3G	1	Tree shape - pointed end
D3G	1	Oval shape
1C5	1	Ball shape
G1H	1	Cone shape
1G3G	1	Cone shape 25°
A3G	1	Cylindrical shape – flat end
IB1J	1	Cylindrical shape – radius end
H9A	1	Cylindrical shape-radius end and edge
IB1J	1	Cylindrical shape — radius end

Rotaset for ground burs and rotary files No. 77 (51119)

Ref.		
No.	Qty	Description
Ground	burs	
4T3G	1	Tree shape - pointed end
4R3G	1	Oval shape
4Q5	1	Ball shape
4U1H	1	Cone shape
4X3G	1	Flame shape
4N3G	1	Cylindrical shape – flat end
4P1J	1	Cylindrical shape – radius end
4V9A	1	Cylindrical shape - radius end and edge
4Y5C	1	Flat top ball shape
Rotary fi	iles	
4F3G	1	Tree shape – pointed end
4D3G	1	Oval shape
4C5	1	Ball shape
4G1H	1	Cone shape
4G3G	1	Cone shape 25°
4A3G	1	Cylindrical shape – flat end
4B1J	1	Cylindrical shape – radius end
4H9A	1	Cylindrical shape - radius end and edge
4A1J	1	Cylindrical shape – flat end

Nicholson® Hand and Circular Saws

Handsaws

The three hundred





Preferred by craftsmen and experienced carpenters who appreciate high quality tools. The Silver Steel® constructed blade is fully taper ground with set, expertly filed teeth and back. Wood handle is designed for superb comfort and balance.

Cat./N/S No./No.	←↓→ "/mm	Crosscut points	Rip points	Width point "/mm	Width butt "/mm	Pack wt. lb/g	Shelf Pack
80013	20/508	10	_	18/41	5½/140	2.63/1193	2
80019	26/660	8	_	18/41	61/159	3.88/1760	2
80028	26/660	10	_	18/41	61/159	3.88/1760	2
80044	26/660	12	_	18/41	61/159	3.88/1760	2
80050	26/660	_	5 1	18/41	61/159	3.88/1760	2

The one seventy five



A general purpose saw of special steel construction with flat ground blade and ribboned back. Teeth are set and bevel filed. Attractive handle with carved grip has 3 screws and 1 medallion.

Cat./N/S No./No.	← ″/mm	Crosscut points	Rip points	Width point "/mm	Width butt "/mm	Pack wt. lb/g	Shelf Pack
80074	20/508	10	_	1동/41	5½/140	2.5/1134	2
80080	26/660	8	_	1 8/41	61/159	3.38/1533	2
80086	26/660	10		15/41	61/159	3.38/1533	2
80092	26/600	_	5 1	1 8/41	61/159	3.38/1533	2

The one hundred fifty



A fine quality medium priced handsaw for general cutting. Special steel constructed blade is flat ground; teeth are set and straight filed. Handle is trimmed with 2 screws and 1 medallion.

Cat. /N/S No. /No.	← " /mm	Crosscut points	Width point "/mm	Width butt "/mm	Pack wt. lb/g	Shelf Pack
80098	20/508	10	1 § / 4 1	5½/140	2.5/1134	2
80104	26/660	8	18/41	6/1/159	3.38/1533	2

The one hundred



A rugged economy saw with built-in quality. Special steel construction blade is flat ground and set. Handle is trimmed with 3 screws. Ideal for home owner and well suited for all uses.

← <u>L</u> → "/mm	Crosscut points	Width point "/mm	Width butt "/mm	Pack wt. lb/g	Shelf Pack
26/660	8	1 5/41	61/159	9.69/4395	6
26/660	10	18/41	61/159	9.69/4395	6
	"/mm 26/660	"/mm points 26/660 8	←	← L→ Crosscut point butt "/mm points "/mm "/mm 26/660 8 11 ½/41 6 ½/159	← L→ Crosscut point butt Pack wt. "/mm points "/mm "/mm lb/g 26/660 8 1½/41 6¼/159 9.69/4395

The fifty



Special steel construction blade is flat ground with set teeth. This general purpose saw has a tough polystyrene handle fitted with 3 screws. Handle design utilizes 45° and 90° angles to help in marking the work piece.

Cat. /N/S No. /No.	← " /mm	Crosscut points	Width point "/mm	Width butt "/mm	Pack wt. lb/g	Shelf Pack
80131	26/660	8	1 1 / 4 1	61/159	13.5/6123	10

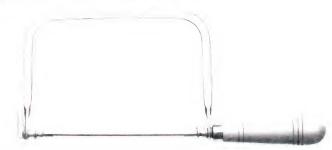
No. 3 Backsaw



A high quality backsaw made of special steel. This saw is a rough for every home workshop. Teeth are bevel filed and set. Gun metal blue finish. Fully weather-proofed wood handle has three screw construction.

Cat /N/S No /No	mm	Width under back	Points	Pack At Ib g	Shell
80151	12 305	3/76	11	3 31	4
80158	14 355	3½/89	11	4 19 1899	2

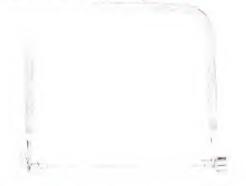
No. 50 Coping saw



Popular coping saw for carpenters and home crafstmen. Throat opening permits cuts up to $4\frac{1}{2}$ "/114mm in depth. Spring steel rounded edge frame has polished finish and adjustable angle blade. Straight type wood handle.

Cat /N S No /No)←↓→	Blade length "mm	Blade width "/mm	Points	Fair July thig	He is
80170	12 317	61 165	1/3.77	15	4 81 2183	

No. 60 Coping saw



Deep-throated coping saw for cutting sharp angles and curves. Throat opening $6\frac{1}{2}''/165$ mm. Spring steel rounded edge frame has polished finish and adjustable angle blade. Straight Type American handle.

Cat. /N/S No /No	←↓→ " mm	Blade length "Imm	Blade width "mm	Points	Park wt	Shall
80176	123 324	6 165	1 3 17	15	. 05 7 75	10

No. 50/60 Coping saw blades



 $6\frac{1}{2}$ "/165mm long, 15 points, pin end. Will fit No. 50 and No. 60 frames.

Cat /N/S No /No	mm	Blade width	Points	lb g	Pack
80182	6½/165	1/3.17	15	0 56 255	100

No. 10 Compass saw



For carpenters and craftsmen who want the finest in wood cutting compass saws. Silver Steel * construction. Comfort design wood handle is assembled with stud and wing nut for easy interchange of blades.

Cat. /N/S	Ref.			Pack	Shelf
No. No.	No.	"/mm	Points	lb/g	Pack
80 188	10	12/305	9	3.63/1644	6
80195	10	14/354	9	3.69/1673	6
Blade only					
80201	10	12/305	9	1.75/794	12
80208	10	14/354	9	2.00/907	12

No. 30 Compass saw



A quality saw for home owners. Special high impact polystyrene handle. Blade is tapered to point for cutting sharp curves. Wing nut assembly permits easy blade interchange or reversal.

Cat. /N/S No. /No.	Ref. No.	← ∟→ ''/mm	Points	Pack wt. lb/g	Shelf Pack
80215	30	12/305	9	2.25/1021	6
80221	30	14/354	9	2.5/1134	6
Blade only					
80227	30	12/305	9	1.5/680	12
80233	30	14/354	9	2.0/893	12

No. 6 Keyhole saw



A professional saw designed for intricate close inside work such as keyholes and frets. Silver Steel* blade is tapered to a sharp point and is bevel filed for faster cuts. Blade assembled to wood handle with stud, wing nut and washer.

Cat./N/S No./No.	Ref. No.	← ''/mm	Points	Pack wt. lb/g	Shelf Pack
80239	6	10/254	10	3. 19/1446	6
Blade only					
80245	6	10/254	10	0.94/425	12

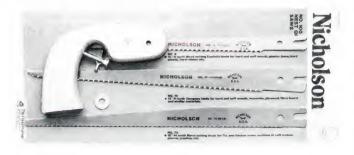
No. 31 Keyhole saw



Same superior quality blade as the No. 6 but with the patented "aimed contol" pistol grip molded black handle.

Cat. /N/S No. /No.	Ref. No.	←-L-→ ''/mm	Points	Pack wt. lb/g	Shelf Pack
80251	31	10/254	10	2.00/907	6
Blade only					
80245	31	10/254	10	0.94/425	12

No. 100 Nest of saws



This multi-purpose nest of saws comes with three interchangeable saw blades: 12"/305mm compass, 10"/254mm keyhole and a 12"/305mm metal-cutting. Silver Steel* constructed blades are easily interchangeable. Comfort design wood handle is assembled with stud, wing nut and washer.

Contents:

Ref.		L		Pack wt.	Shelf
No.	Description	"/mm	Points	lb/g	Pack
100	Nest (complete)	_	_	3.88/1758	4
6	Keyhole blade only	10/254	10	0.94/425	12
10	Compass blade only	12/305	9	1.75/794	12
70	Metal blade only	12/305	15	1.88/850	12
85H	Wood handle	_		1.88/850	5
	No. 100 6 10 70	No. Description 100 Nest (complete) 6 Keyhole blade only 10 Compass blade only 70 Metal blade only	No. Description "/mm 100 Nest (complete) — 6 Keyhole blade only 10/254 10 Compass blade only 12/305 70 Metal blade only 12/305	No. Description "/mm Points 100 Nest (complete) — — 6 Keyhole blade only 10/254 10 10 Compass blade only 12/305 9 70 Metal blade only 12/305 15	No. Description "/mm Points lb/g 100 Nest (complete) — — 3.88/1758 6 Keyhole blade only 10/254 10 0.94/425 10 Compass blade only 12/305 9 1.75/794 70 Metal blade only 12/305 15 1.88/850

Pruning saws No. 20 Curved pruner



An excellent general purposes pruner for fast cutting of small limbs. A favorite in citrus groves and vineyards. Silver Steel constructed blade with polished finish. Has convenient hang-up hole. Easy-to-grip knife-type wood handle is trimmed with aluminum screws.

Cat. /N/S No. /No.	←-L-→ ''/mm	Reverse rip	Point width "/mm	Butt width "/mm	Pack wt. lb/g	Shelf Pack
80263	14/354	7	रैं _ह / 14.28	21/63	3.19/1446	6

No. 316 Double edge pruner



Lightweight economy pruner with dual-purpose cutting edges. Fine teeth on one edge for light trimming, lightning teeth on other edge for heavier limbs. Special steel construction. Comfort grip wood handle.

Cat./N/S No./No	← └→ ''/mm	Points	Point width "/mm	Butt width "/mm	Pack lb/g	Shelf Pack
80269	16/406	8 (fine edge) 8.73mm/ } Pitch lightnin (2nd edge)		21/63	5.00/2268	6

No. 24 Folding pruner



This safe-design fine tooth pruner features a sure grip wood handle that folds to protect the cutting edge. Perfect for camping and toolbox storage. A must for every gardener.

Cat. N/S	← ''/mm	Cross-cut points "/mm	Point width "/mm	Butt width "/mm	Pack wt. lb/g	Shelf Pack
80275	10/254	61/165	1/12.70	118/49	4.50/2041	6

No. 14 Silver flash pruner



The best heavy duty performer of any pruning saw made, this Silver Steel® blade has extra large teeth and gullets for speed cutting of large limbs. Concave cutting edge is precision set and beveled filed and cuts fast on the pull stroke. Blade is flat ground with wood handle, trimmed with aluminum screws. Preferred by utility crews and tree surgeons.

Cat. N/S	⊷	Point width	Butt width "/mm	Pack wt.	Shelf
No No	″/mm	"/mm		lb/g	Pack
80299	26/660	$1\frac{1}{3}\frac{3}{2}/36$	3 ₁₆ /84	10/4536	6

No. 420 Tuttle tooth pruner



Handy all purpose saw for general pruning requirements. Teeth designed for fast cutting of large limbs and firewood. Special steel construction blade has wood handle trimmed with three screws. Ideal for campers.

Cat /N/S No /No	←↓→ ''/mm	Point width "/mm	But width "/mm	Pack wt. lb/g	Shelf Pack
80305	20/508	11/28.57	47/124	7.25/3289	6
80309	24/610	11/28.57	4½/124	10.63/4822	6

Hand hacksaw frames

No. 10 Hacksaw frame



Our finest hacksaw frame is corrosion proof, polished nickel with 3½"/86mm throat, adjustable for 10"/254mm or 12"/305mm blades. Molded plastic handle. Blade holding bolts are adjustable to four positions. Rear bolt has wing nut for easy tensioning of blade. Each frame is individually packed and equipped with a 10"/254mm Nicholson* blade.

Cat./N/S	Туре	Blade	Pack wt.	Shelf
No /No		"/mm	lb/g	Pack
80952	Adjustable	10/254	1≩/794	1

No. 9 Hacksaw frame



Sturdy, bright nickel frame with 3½"/89mm throat. Adjusts for 10"/254mm or 12"/305mm blade in four positions. Molded handle is open pistol grip design. Blade holding bolt is equipped with large wing nut tightner. Assembled with 10"/254mm Nicholson* blade.

Cat. N/S	Type	Blade "/mm	Pack wt. lb., oz/g	Shelf Pack
80958	Adjustable	10/254	6,10½/3005	6

No. 7 Hacksaw frame



Nicholson's economy frame is designed for the hobbyist with only occasional need for a hacksaw. Sturdy, polished nickel frame with $2\frac{\pi}{4}$ "/70mm throat adjusts to 10"/254mm and 12"/305mm blades. Has pistol grip handle of molded plastic.

Cat /N/S	Туре	Blade	Pack wt.	Shelf
No /No		"/mm	lb/kg	Pack
80964	Adjustable	10/254	91/4.20	10

Little-Nic[®] utility hacksaw



For professionals and home owners. Gets into small places – makes difficult cutting jobs easy. Comes complete with high-quality Nicholson SS1024 hacksaw blade. Uses any flexible hacksaw blade. Overall length 11"/279mm so it fits into any tool box. Blister packed on attractive cards with suggested uses on back.

Cat. /N/S	Blade	Pack wt.	Shelf	
No. /No.	"/mm	lb/g	Pack	
80968	10/254	1 7 /652	6	

Saw accessories

1S Handsaw screw



Nickel-plated steel handsaw screw, oval head with nut.

Cat./N/S	Ref.	Pack wt.	Shelf	
No./No.	No.	lb/g	Pack	
80386	1S	0.36/163	12	

10SN Handsaw screw



Nickel-plated steel handsaw screw with nut. Nicholson medallion.

Cat. N/S	Ref.	Pack wt.	Shelf
No. No.	No.	lb/g	Pack
80393	10SN	0.60/272	12

F10A and F9A Hacksaw frame assembly

Front and rear stud with washer and wing nuts.

Cat./N/S No./No.	Ref. No.	Assembly For	Shelf Pack
80397	F10A	No. 10 Hacksaw frame	1
80398	F9A	No. 7 & 9 Hacksaw frame	1

Replacement handles

71-H handle



71-H handle is bored, slotted hardwood with apple stain finish. Fits $20^{\prime\prime}/508$ mm or $26^{\prime\prime}/661$ mm handsaws.

Cat. /N/S No. /No.	Ref. No.	Wt. each lb/g	Shelf Pack 5	
80341	71-H	0.56/225		

72-H handle



72-H handle is not bored. Slotted hardwood with natural finish. Fits 20"/508mm or 26"/661mm handsaws.

Cat. N/S No. No.	Ref. No.	Wt. each lb/g	Shelf Pack 5	
80343	72-H	0.58/262		

83-H handle



Bored handle. Fits 12"/305mm and 14"/355mm back saws.

Cat. /N/S	Ref.	lb/g	Shelf
No. /No.	No.		Pack
80356	83-H	_	5

85-H handle



Compass/Keyhole saws. Bored. Fits No. 10 and No. 30 compass saw, No. 6 and No. 31 keyhole saw, and No. 100 nest of saws.

Cat./N/S	Ref.	lb/g	Shelf	
No./No.	No.		Pack	
80354	85-H	_	5	

Hand hacksaw blades

Bi-Metaloy®— carded

Nicholson°

CAT. NO. 62801 NF 1018 SP HSS EDGE Lasts twice as long as high speed steel and up to ten times longer than carbon steel. With exceptional combination of tooth hardness and shock resistance these blades can operate 20% to 50% faster resulting in lower costs per cut.

Ref.		Carded Cat. / N/S	Boxed Cat. /N/S	Length	Width	Gauge	Teeth	Wt. per 100
No.	Type	No./No.	No./No.	"/mm	"/mm	"/mm	Per Inch	lb/g
NF(NM)1018	Raker	62801	62635	10/254	½/12.70	.025/0.650	18	3½/1585
NF(NM)1024	Wavy	62807	62659	10/254	½/12.70	.025/0.650	24	$3\frac{1}{2}/1585$
NF(NM)1032	Wavy	62813	62683	10/254	½/12.70	.025/0.650	32	$3\frac{1}{2}/1585$
NF(NM)1214	Raker	62819	62706	12/304	½/12.70	.025/0.650	14	41/1925
NF(NM)1218	Raker	62825	62723	12/304	1/12.70	.025/0.650	18	41/1925
NF(NM)1224	Wavy	62831	62749	12/304	½/12.70	.025/0.650	24	41/1925
NF(NM)1232	Wavy	62837	62776	12/304	1/12.70	.025/0.650	32	41/1925

Carded: 1 blade per card - 10 cards per unit box - 5 unit boxes per carton Boxed: packaged 100 blades per box.

Bi-Metaloy®Tungsten Silver Steel®

This is definitely not a general use blade. On the contrary, it is premium priced because it is specifically made for cutting the toughest materials with maximum efficiency.

While a relatively small percentage of all cutting jobs require the premium qualities built into the Tungsten blade, those jobs that do fall into that category make its selection advantageous. It is extremely effective on stainless steels, high manganese steels and certain bronzes.

When the work calls for this blade, it is a profitable investment in production efficiency. Blades are produced to exacting specifications and inspected to insure high quality.

Nicholson°

CAT. NO. 62967 NT 1018 TUNGSTEN

Ref. No.	Type	Boxed Cat. & N/S No.	Length "/mm	Width "/mm	Gauge "/mm	Teeth per Inch	Wt. per 100 in lb/g
NT1018	Raker	62967	10/254	½/12.70	.025/.65	18	3½/1585
NT1024	Wavy	62982	10/254	½/12.70	.025/.65	14	3½/1585
NT1032	Wavy	62997	10/254	½/12.70	.025/.65	32	3½/1585
NT1214	Raker	63012	12/304	½/12.70	.025/.65	14	41/1925
NT1218	Raker	63027	12/304	½/12.70	.025/.65	18	41/1925
NT1224	Wavy	63042	12/304	½/12.70	.025/.65	24	41/1925
NT1232	Wavy	63058	12/304	½/12.70	.025/.65	32	41/1925

Packaged 100 blades per box.

Special shatterproof standard flexible - for thin stock

Specially hardened to induce toughness. Because of this extreme toughness, one tooth coarseness greater than that normally recommended can be used. Thus the cutting speed on thin stocks can be increased. Note, however, that this blade is not recommended for higher carbon or alloyed steels.

NICHOLSON

Ref. No. Type	Carded Cat. /N/S No. /No.	Boxed Cat. /N/S No. /No.	Length	Width "/mm	Gauge "/mm	Teeth Per Inch	Wt. per 100 lb/kg	
SS1018	Raker	63208	63103	10/254	½/12.70	.025/.65	18	3½/1585
SS1024	Wavy	63220	63112	10/254	½/12.70	.025/.65	24	3½/1585
SS1032	Wavy	63232	63124	10/254	½/12.70	.025/.65	32	3½/1585
SS1214	Raker	63244	63136	12/304	½/12.70	.025/.65	14	4/1812
SS1218	Raker	63256	63145	12/304	½/12.70	.025/.65	18	4/1812
SS1224	Wavy	63268	63158	12/304	½/12.70	.025/.65	24	4/1812
SS1232	Wavy	63280	63171	12/304	½/12.70	.025/.65	32	4/1812

Packaged 100 blades per box.

Sabre saw blades













The complete line of Nicholson® flame hardened steel blades resists breakage, gives longer life and assures clean and accurate cutting. Blades are available for cutting woods, metals, laminates and wallboard in coarse, medium and fine tooth styles. Universal ¼"/6 mm shanks fit all popular makes of sabre saws. Ideal for home and professional use.

Ref. No.	Cat./N/S No./No	Blade Type	Card wt. oz/g	Blades Per card
1	81036	Metal/wood 3½"/89mm long 14 T.P.I.	6/170	2
2	81043	Metal Cutting 3"/76mm long 24 T.P.I.	4/113	2
3	81050	Wood Cutting $3\frac{1}{2}''/89$ mm long 7 T.P.I.	6/170	2
4	81057	Wood Cutting 3½"/89mm long 10 T.P.I.	6/170	2
5	81064	Taper Back 3"/76mm long 10 T.P.I.	4/113	2
6	81071	Scroll Sawing 3"/76mm long 10 T.P.I.	4/113	2
7	81078	Metal Cutting 3"/76mm long 32 T.P.I.	4/113	2
8	81085	Wood Cutting 6"/152mm long 7 T.P.I.	8/227	1
9	81091	Knife Blade 3"/76mm long	4/113	2
10	81094	Flush Cutting 3½" /89mm long 7 T.P.I.	8/227	1

Skin packed on cards. 10 cards per box. Approximate weight ½lb/226g/carton.

Sabre saw blade assortment

NS-6

NS-3





Ideal popular sabre saw blade units packed in a convenient plastic pouch. A saw blade for every cutting need from rough wood and laminates to tubing, conduit and fine gauge metal. Universal $\frac{1}{4}^{\prime\prime}/6.35$ mm shank to fit all popular sabre saws. See table on previous page for blade number description.

Cat. /N/S No. /No.	Ref. No.	Contents	Wt. each	Shelf Pack
81103	NS-6	1, 2, 3, 4, 5, 7	1/452	10
81106	NS-3	3, 5, 7	½/226	10

Hacksaw comparison chart

		Hand Hacks	aw Blades	
				Standard
		All	All Hard	Steel
Manufacturers	Bi-Metaloy®	Hard Mo.	Tungsten	Flexible
Nicholson®	Flex Mo.	All Hard Mo.	All Hard Tung.	Flex Standard
American Saw (Lenox)	Hackmaster	Mo-Speed	-	Standard
Armstrong-Blum (Marvel)	Exempler	_	_	Carbon 60
Stanscrew/Capewell (Capewell)	Safe Tech	Technite	Tungsten	Flex-Tung
Clemson Bros. (Star)	Molyflex	Moly	Tungsten	_
Diamond Saw (Sterling)	Super Sterling	_	_	Flexible
Disston, Inc.	Super Safe Tungsten	Di-Mol	Tungsten	Dura-Flex
DoAll	Safety	Molybdenum	18% Tungsten	Flexible
Ladish Company	Moly Flexible	Moly Hard	Tungsten	Flexible
Millers Falls	Blu-Flex	Blu-Mol	High Speed (18-4-1)	Tuf Flex
Simonds Cutting Tools	H.S.S. Shatter Proof	_	_	Standard
Spartan Saw Works	Saf-T-Saw	Kutall		Flexible
L. S. Starrett Company	Green-Stripe Safe-Flex	Red-Stripe S-M High Spd	Blue-Stripe	Grey-Flex
H. G. Thompson (Milford)	Flex. Rezistor	All Hard Rezistor		Flexible
Victor Saw Works	Molyflex	Moly	Tungsten	_

VICTOR GUY TYONG	iory in a second		
	Power Hack	saw Blades	
	High Speed	High Speed	High Speed
Manufacturers	Molybdenum	Tungsten	Weld-Edge
Nicholson	* All Hard Mo.	All Hard	Weld Edge Shatterproof
American Saw (Lenox)	_	_	Hackmaster
Armstrong-Blum (Marvel)	_	_	High Spd Edge
Standscrew/Capewell (Capewell)	Technite	_	Safe Tech
Clemson Bros. (Star)	Star Moly	Tungsten	Molyflex
Diamond Saw (Sterling)	Molybdenum	Tungsten	Welded Edge
Disston, Inc.	Di-Mol	Tungsten	Super Safe Di-Cro-Cut
DoAll	Molybdenum	18% Tungster	Safety
adish Company	All Hard	Tungsten	Welded Edge
Aillers Falls	Blu-Mol	_	Jet-Edge
Simonds Cutting Tools	Molybdenum	Tungsten	Weld-Edge
Spartan Saw Works	Kutall	_	Saf-T-Saw
. S. Starrett Company	Red-Stripe	Blue-Stripe	Safe-Flex
H. G. Thompson (Milford)	All Hard Rezistor	-	Weld-Edge
Victor Saw Works	Moly	Tungsten	Molyflex

^{*} Also available in flexible high speed (molybdenum).

Hand hacksaw blades Care and servicing

Blade breakage

- 1. Lack of tension. Tighten until taut.
- 2. Too much tension. Loosen slightly.
- 3. Cutting in awkward position. Use flexible type blades.
- 4. Jamming in cut. Hold work securely stock should fall free after cut. In soft material teeth may be binding because they are too fine.

Pinhole breakage

- 1. Too much tension. Loosen slightly.
- 2. Worn pins causing pressure on eyeholes. Replace pins.

Rounded teeth - premature wear

- 1. Blade not cutting. Use slower stroke and apply heavier feed.
- 2. Dragging on return stroke. Lift saw.
- 3. Material too hard. Select proper blade.

Crooked cutting

- 1. Too much pressure. Reduce feed.
- 2. Blade out of alignment. Check frame and blade tension.
- 3. Blade worn out. Replace.

Tooth breakage

- 1. Teeth too coarse. Keep 3 in the work.
- 2. Too much feed, teeth loading. Ease feed pressure.
- 3. Teeth too fine, clogging. Change to coarser tooth.
- 4. Starting cut on sharp corner. Reposition work.

General tooth recommendations

- 14 Tooth: For cutting stock $1^{\prime\prime}/125.40$ mm or over in cross section. For soft materials where maximum chip clearance is needed.
- 18 Tooth: For general shop use, when same blade is used on several jobs. 24 Tooth: For cross section $\frac{1}{16}$ " /1.58mm $-\frac{1}{4}$ " /6.35mm such as pipe, angles, small drill rod.
- 32 Tooth: To cut stock up to $\frac{1}{16}$ " /1.58mm such as light tubing, sheet metal, BX.

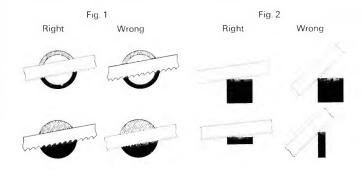
At least two teeth should be in contact with the work at all times.

Choose the right number of teeth per inch

The sketches below (figure 1) show how coarseness of teeth affects blade efficiency. See maximum speeds recommended at right. Speed varies according to material being cut and saw blade coarseness.

Starting the cut

If possible, avoid starting cut on a sharp corner. When unavoidable, begin with light pressure and use a steady forward stroke. As many teeth as possible should be in contact with the cutting area and at least two teeth must be engaged. Note cutting angles shown below.



Solutions to hacksaw blades problems

Blade breakage

- 1. Dropping blade on work. Feed blade into work slowly.
- 2. Loose blade. Follow tension recommendations.
- 3. Excessive feed. Reduce pressure.
- 4. New blades used in old cut. Reverse stock.
- 5. Blade binds at end of cut. Allow loose piece to fall away.

Pinhole breakage

- 1. Dirty mounting plates. Clean blade and holder to obtain snug fit.
- 2. Too much tension. Reduce blade tension.
- 3. Worn mounting plates and pins. Replace parts.

Stripped teeth

- 1. Clogging. Too many teeth per inch; change to coarser tooth.
- 2. Shock. Teeth too coarse; change to finer tooth blade.
- 3. Blade entering work at a sharp edge. Reposition work to insure keeping three teeth in work.
- 4. Excessive feed pressure. Reduce pressure.
- 5. Material unstable, not properly clamped. Secure properly.

Premature tooth wear

- 1. Blade reversed in saw. Teeth should be in same direction as cutting stroke.
- 2. Wrong blade for the job. Refer to tooth selector chart on page 82 and blade descriptions on pages 82, 83 and 84.
- 3. No cutting lubricant. Use lubricant on all materials except paper and cast iron.
- 4. Blade drags on return stroke. Make sure blade lifts for return stroke.
- 5. Too much heat generated by excessive speed. Reduce speed.
- 6. Excessive feed pressure. Moderate pressure produces longer tooth life.
- 7. Teeth just rubbing material. Due to insufficient feed. Increase feed.

Crooked cutting

- 1. Worn blade. Replace.
- 2. Loose blade. Check for correct tension.
- 3. Excessive pressure. Use correct rate of feed.
- 4. Material unstable. Clamp stock securely.
- 5. Frame out of alignment. Check and adjust machine.6. Hard spots in material. Reverse stock and start new cut.

Nicholson hand hacksaw tooth selector

Material	Teeth	Strokes Per Minute
Ferrous		
*BX	32	60
*Conduit, Rigid	24	60
Drill Rod	18-24	40
Iron, Cast	14	60
*Pipe	24	60
Rails	14	40
*Sheet Metal	24-32	60
Steel, Machinery	14-18	60
Steel, Tool	18-24	50
Structural Shapes, Heavy	18	60
Structural Shapes, Light	24	60
*Tubing, Light	32	60
Non-Ferrous		
Aluminum	14	60
Brass and Bronze	14-24	60
*Brass Tubing	24	60
Copper	14	60
Structural Shapes	14-24	60
Non-Metals		
Asbestos	14	60
Fiber	14	60

^{*} Special shatterproof blades of coarser teeth than specified may be used with excellent results on thin sections. See page 61.

14

50

Magicut[®] circular saw blades

Made of the finest alloy chrome nickel molybdenum steel. Precision ground to exacting standards. Blades stay sharper longer and resist rust. Cut smoother with less friction than ordinary steel blades. Blades can be reset and filed. Teeth individually set and sharpened. Precision arbor fit. Fits all popular saws with $\frac{5}{8}''$, $\frac{1}{2}''$ or diamond arbors. Sold in full box quantities only.

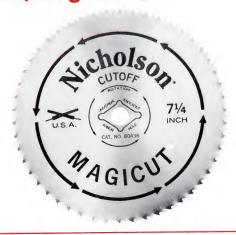
ROUND $\frac{1}{5}$ "/15.87mm to $\frac{1}{2}$ "/12.70mm $\frac{1}{2}$ "/19mm to $\frac{1}{5}$ "/16mm 1"/25.4mm to $\frac{3}{4}$ "/19mm



UNIVERSAL $\frac{5}{8}$ "/16mm to $\frac{1}{2}$ "/12.7mm $\frac{13}{8}$ "/20.6mm Diamond



Cut off (flat ground)



Ideal for fast smooth cutting across the grains of hard or soft wood, sheeting, flooring and wood molding. Easily resharpened.

Cat./N/S No./No.	Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80406	6/152	Universal	100	5.38/2437	10
80415	6 1 /165	Universal	100	6.38/2890	10
80425	7/178	Universal	100	7.69/3483	10
80436	71/184	Universal	100	8.13/3682	10
80446	8/203	Universal	100	10.94/4955	10
80453	9/228	§/15.87 x ½/12.70 round	100	6.13/2776	5
80456	10/254	₹/19.05 x ₹/15.87 round	100	8.94/4049	5
80463	12/305	1/25.40 x 3/19.05 round	100	2.88/1304	1

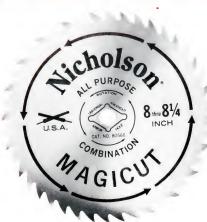
Rip (flat ground)



For cutting hard and soft woods with the grain. Teeth set for clearance. Easily resharpened.

Cat. N/S	Blade dia.	Arbor hole		Pack wt.	Shelf
No./No.	"/mm	"/mm x "/mm	Teeth	lb/g	Pack
80470	6/152	Universal	36	5.38/2437	10
80479	6½/165	Universal	36	6.38/2890	10
80488	7/178	Universal	36	7.69/3483	10
80497	71/184	Universal	36	8.13/3682	10
80506	8/203	Universal	36	10.94/4955	10
80512	9/228	\$/15.87 x ½/12.70 round	36	6.13/2776	5
80515	10/254	₹/19.05 x ₹/15.87 round	36	8.94/4049	5
80522	12/305	1/25.40 x 3/19.05 round	36	2.88/1304	1

All purpose combination (flat ground)



Designed for smooth cutting in any direction through all types of wood. Easily resharpened.

dia. "/mm	Arbor hole		Pack wt.	
"/mm			rack WL.	Shelf
	"/mm x "/mm	Teeth	lb/g	Pack
6/152	Universal	40	5.38/2437	10
6½/165	Universal	44	6.38/2890	10
7/178	Universal	44	7.69/3483	10
71/184	Universal	44	8.13/3682	10
8/203	Universal	44	10.94/4955	10
9/228	§/15.87 x ½/12.70 round	44	6.13/2776	5
10/254	₹/19.05 x ₹/15.87 round	44	8.94/4049	5
12/305	1/25.40 x 3/19.05 round	48	2.88/1304	1
	6/152 6½/165 7/178 7½/184 8/203 9/228 10/254	6/152 Universal 6½/165 Universal 7½/184 Universal 8/203 Universal 9/228 ½/15.87 x ½/12.70 round 10/254 ½/19.05 x ½/15.87 round	6/152 Universal 40 6½/165 Universal 44 7/178 Universal 44 7½/184 Universal 44 8/203 Universal 44 9/228 §/15.87 x ½/12.70 round 44 10/254 ¾/19.05 x §/15.87 round 44	6/152 Universal 40 5.38/2437 6½/165 Universal 44 6.38/2890 7/178 Universal 44 7.69/3483 7½/184 Universal 44 8.13/3682 8/203 Universal 44 10.94/4955 9/228 ½/15.87 x½/12.70 round 44 6.13/2776 10/254 ½/19.05 x ½/15.87 round 44 8.94/4049

Chisel tooth combination (flat ground)



For fast rugged general purpose cutting. Rips, crosscuts, miters hard and soft wood, wallboard, and heavy construction gauge plywood. Easily resharpened.

Cat. /N/S	Blade dia.	Arbor hole		Pack wt.	Shelf
No. /No.	"/mm	"/mm x "/mm	Teeth	lb/g	Pack
80595	5½/139	12.70/½ round	20	5.00/2267	10
80598	6/152	Universal	20	5.38/2437	10
80607	6½/165	Universal	20	6.38/2890	10
80616	7/178	Universal	24	7.69/3483	10
80626	71/184	Universal	24	8.13/3682	10
80636	8/203	Universal	30	10.94/4955	10
80642	9/228	§/15.87 x ½/12.70 round	30	6.13/2776	5
80646	10/254	₹/19.05 x ₹/15.87 round	36	8.94/4049	5
80653	12/305	1/25.40 x ₹/19.05 round	40	2.88/1304	1

Planer combination (flat ground)



Economical blade for smooth cross cutting, ripping and mitering. Fast cutting teeth are set for clearance. Can be resharpened.

	61 .				
Cat./N/S	Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80660	6/152	Universal	10 st.	5.38/2437	10
80669	6½/165	Universal	10 st.	6.38/2890	10
80678	7/178	Universal	12 st.	7.69/3483	10
80687	71/184	Universal	12 st.	8.13/3682	10
80696	8/203	Universal	14 st.	10.94/4955	10
80705	9/228	§/15.87 x ½/12.70 round	16 st.	6.13/2776	5
80714	10/254	¾/19.05 x ⅓/15.87 round	16 st.	8.94/4049	5
80722	12/305	1/25.40 x 3/19.05 round	18 st.	2.88/1304	1

st. = sections

Plywood (flat ground)



Smooth, economical cutting of paneling, plywood and laminates. Also used where occasional nails are found, such as old flooring. Easily resharpened.

	Blade				
Cat. /N/S	dia.	Arbor hole		Pack wt.	Shelf
No. /No.	"/mm	"/mm x "/mm	Teeth	lb/g	Pack
80727	5½/139	½/12.70 round	120	5.00/2267	10
80729	6/152	Universal	150	5.38/2437	10
80738	6½/165	Universal	150	6.38/2890	10
80748	7/178	Universal	150	7.69/3483	10
80758	71/184	Universal	150	8.13/3682	10
80768	8/203	Universal	150	10.94/4955	10
80775	9/228	§/15.87 x ½/12.70 round	168	6.13/2776	5
80778	10/254	3/19.05 x 3/15.87 round	190	8.94/4049	5

Hollow ground planer combination



Premium blade offers fast, smooth crosscutting, ripping and mitering. Fast cutting teeth, hollow ground for clearance. Excellent blade for all furniture and cabinet work where exceptionally smooth cutting is required. Can be resharpened.

Cat. /N/S	Blade S dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80786	61/165	§/15.87 x ½/12.70 round	10 st.	4.88/2210	10
80796	7/178	§/15.87 x ½/12.70 round	12 st.	6.06/2745	10
80802	7-71/178-184	Diamond	¹12 st.	6.56/2971	10
80806	71/184	§/15.87 × }/12.70 round	12 st.	6.56/2971	10
80816	8/203	§/15.87 x ½/12.70 round	14 st.	8.00/3628	10
80823	9/228	§/15.87 x ½/12.70 round	16 st.	5.19/2351	5
80826	10/254	3/19.05 x 1/15.87 round	16 st.	7.50/3397	5

Hollow ground plywood



A premium blade hollow ground for clearance designed for virtually splinter free cutting of plywood, paneling, and laminated woods. Easily resharpened.

Cat. /N/S No. /No	Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80833	61/165	§/15.87 x ½/12.70 round	150	4.88/2210	10
80841	7/178	$\frac{5}{15.87} \times \frac{1}{2} / 12.70 \text{ round}$	150	6.06/2745	10
80843	7-71/178-184	Diamond	150	6.56/2971	10
80848	71/184	§/15.87 x ½/12.70 round	150	6.56/2971	10
80856	8/203	§/15.87 x ₹/12.70 round	150	8.00/3628	10
80860	9/228	{15.87 x }/12.70 round	168	5.19/2351	5
80864	10/254	₹/19.05 x ₹/15.87 round	190	7.50/3397	5

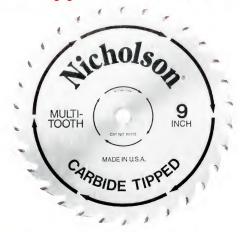
Carbide tipped



Long lasting premium blade for fast rugged general purpose cutting of woods, wallboard, and heavy construction gauge plywood. Longer lasting than conventional blades.

Cat./N/S No./No	Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80870	61/165	Universal	8	4.94/2237	5
80876	7-71/178-184	Universal	8	5.86/2663	5
80882	8/203	Universal	8	6.75/3057	5

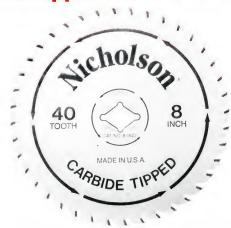
Carbide tipped multi-tooth



Stays sharper, cuts faster, lasts longer than conventional blades. Cuts almost any material smoothly — without binding.

Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
61/165	Universal	20	3.25/1472	5
7/178	Universal	24	3.75/1698	5
7-71/184	Universal	24	4.00/1814	3
8/203	Universal	30	5.00/2265	3
9/228	§/15.87 x ½/12.70 round	30	6.75/3057	2
10/254	§/15.87 x ½/12.70 round	36	8.00/3624	2
	dia. "/mm 6½/165 7/178 7-7½/184 8/203 9/228	dia. Arbor hole "/mm "/mm x "/mm 6½/165 Universal 7/178 Universal 7-7½/184 Universal 8/203 Universal 9/228 ½/15.87 x ½/12.70 round	dia. Arbor hole Teeth "/mm "/mm x "/mm Teeth 6½/165 Universal 20 7/178 Universal 24 7-7½/184 Universal 24 8/203 Universal 30 9/228 ½/15.87 x ½/12.70 round 30	dia. Arbor hole "/mm x "/mm x "/mm Pack wt. lb/g 6½/165 Universal 20 3.25/1472 7/178 Universal 24 3.75/1698 7-7½/184 Universal 24 4.00/1814 8/203 Universal 30 5.00/2265 9/228 ½/15.87 x ½/12.70 round 30 6.75/3057

Carbide tipped blade - 40 tooth



Finer cuts at a faster production. More cuts in less time without sacrificing a smooth cut finish. Packaged in reusable blade saver pack for safe storage.

Cat. /N/S No. /No.	Blade dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80812	6½/165	Universal	40	2.88/1304	3
80813	7-71/178-184	Universal -	40	3.10/1389	3
80822	8/203	Universal	40	4.43/2013	3
80830	9/228	Universal	40	5.12/2325	2
80831	10/254	Universal	40	6.75/3062	2

Carbide tipped blade - 60 tooth



Faster cuts at a faster production. More cuts in less time without sacrificing a smooth cut finish. Packaged in reusable blade saver pack for safe storage.

	Blade				
Cat./N/S No./No.	dia. "/mm	Arbor hole "/mm x "/mm	Teeth	Pack wt. lb/g	Shelf Pack
80836	8/208	Universal	60	4.44/2012	3
80837	9/228	Universal	60	5.12/2325	2
80838	10/254	Universal	60	6.75/3062	2

Circular saw blades bulk packaged

Description	Cat./N/S No./No.	Blade diameter "/mm	Arbor hole	Teeth	Shelf Pack
All purpose combination	80545	6½/165	Universal	44	50
Plywood	80736	6½/165	Universal	150	50
All purpose combination	80553	71/184	Universal	44	50
Plywood	80755	71/184	Universal	150	50

Circular saw blades with millimeter arbor holes - for export only

These blades are manufactured to U.S.A. standards, except that the arbor (center) hole on all blades has a 25mm center hole punched with bushings provided to reduce hole sizes to 20mm and 15mm. These blades are skin packed on our standard cards with labels indicating the center hole sizes.

Cut off (flat ground)

Ideal for flat smooth cutting across the grains of hard or soft wood, sheeting, flooring and wood molding. Easily resharpened.

Cat. /N/S No. /No.	Blade diameter "/mm	Arbor hole mm x mm x mm	Teeth	Pack wt. lb/g	Shelf Pack
80406	6/152	25 x 20 x 15	100	5.38/2437	10
80425	7/178	25 x 20 x 15	100	7.69/3483	10
80446	8/203	25 x 20 x 15	100	10.94/4955	10
80453	9/228	25 x 20 x 15	100	6.13/2775	5
80456	10/254	25 x 20 x 15	100	8.94/4049	5

Rip (flat ground)

For cutting hard and soft woods with the grain. Teeth set for clearance. Easily resharpened.

	Blade			Deeleast	Shelf
Cat. /N/S	diameter	Arbor hole		Pack wt.	
No./No.	"/mm	mm x mm x mm	Teeth	lb/g	Pack
80470	6/152	25 x 20 x 15	36	5.38/2437	10
80488	7/178	25 x 20 x 15	36	7.69/3483	10
80506	8/203	25 x 20 x 15	36	10.94/4955	10
80512	9/228	25 x 20 x 15	36	6.13/2776	5
80515	10/254	25 x 20 x 15	36	8.94/4049	5

All purpose combination (flat ground)

A blade for all general purpose work. Smooth cutting in any direction through all types of wood. Easily resharpened.

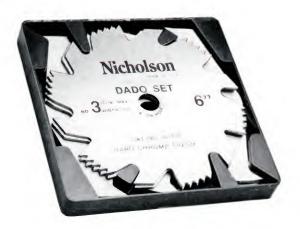
Cat./N/S No./No.	Blade diameter "/mm	Arbor hole mm x mm x mm	Teeth	Pack wt. lb/g	Shelf Pack
80529	6/152	25 x 20 x 15	40	5.38/2437	10
80566	8/203	25 x 20 x 15	44	10.94/4955	10
80575	9/228	25 x 20 x 15	44	6.13/2776	5
80583	10/254	25 x 20 x 15	44	8.94/4049	5

Planer combination (flat ground)

Economical blade for smooth crosscutting, ripping and mitering. Fast cutting teeth are set for clearance. Can be resharpened.

Cat. /N/S No. /No.	Blade diameter "/mm	Arbor hole mm x mm x mm	Teeth	Pack wt. lb/g	Shelf Pack
80660	6/152	25 x 20 x 15	10 st	5.38/2437	10
80678	7/187	25 x 20 x 15	12 st	7.69/3483	10
80696	8/203	25 x 20 x 15	14 st	10.94/4955	10
80714	10/254	25 x 20 x 15	16 st	8.94/4049	5
st = section	10/201				

Dado set



This Dado set offers optional groove requirements up to and including $\frac{1}{18}"/20.63\text{mm}$ to fit virtually all home craftsman and shop requirements. It should not be confused with lower priced "Dados" capable only of three different widths of cut. Nicholson® Dado set cut grooves in one quick, easy operation—in any direction. Seven cutter blades easily interchanged. Width of cut varies from $\frac{1}{8}"/3.17\text{mm}$ to $\frac{1}{8}"/20.63\text{mm}$. Made of high quality steel, ground and matched to insure smooth, clean grooves. Hard-chromed finish provides excellent rust resistance. For bench, radial arm, and swing saws. Set includes two outside cutters $\frac{1}{8}"/3,17$ gauge, one inside cutter $\frac{1}{16}"/1.58\text{mm}$ gauge and four inside cutters $\frac{1}{8}"/3.17\text{mm}$ gauge.

Cat.	Blade diameter	Hole diameter "/mm	Pack wt. lb/g	Shelf Pack
80916	6/152	§/15.87	2.62/1191	1
80922	8/203	§/15.87	5.37/2438	1

Circular saw blade bushings

Cat./N/S No./No.	Ref. No.	Description "/mm x "/mm	Shelf Pack
80928	1	§/15.87 x ½/12.70	10
80934	3	₹/19.05 x ₹/15.87	10
80940	6	1/25.40 x 3 /19.05	10
80946	11	Diamond x ½/12.70 round hole	10
80949	12	Diamond x 5/15.87 round hole	10

Circular saw blade kits

Trio kit



An attractive combination package aimed directly at the home handyman. One convenient purchase provides him with three blades that will be all he needs to tackle the most involved home improvement projects.

The handy fold-up package stores the extra blades and features a quick reference chart indicating which blade is best for a particular task

Cat. /N/S No. /No.	Blade Size "/mm	Contents	Pack wt. lb/kg	Shelf Pack
80920	61/165	Rip, All-purpose & Plywood	$8\frac{1}{2}/3.8$	5
80921	71/184	Rip, All-purpose & Plywood	111/5.1	5

Duo-Pack



The self-storing Nicholson* Duo-Pack holds a plywood blade used for making fast, splinter-free cuts through paneling, plywood and laminates and a planer combination blade to make quick work of cross cutting, ripping and mitering. Blades are protected in the sturdy, easy to store package which also provides a blade selection reference chart.

Cat./N/S No./No.	Blade Size "/mm	Contents	Pack wt. lb/g	Shelf Pack
80924	6½/165	Plywood & Planer combination	7 1/3.25	5
80925	7 1/ 184	Plywood & Planer combination	9,16/4.14	5

Mandrels with high speed $\frac{1}{4}$ "/6.35mm pilot drills



Cat. /N/S No. /No.	Ref. No.	Shank "/mm	Fitting saws nos.	Follows through
81317	M401H	1/6.35 round	H109-H119	H112-H119
81323	M402H	½ / 11.11 hex	H109-H119	H12-H119
81335	M404HF	7 / 11.11 hex	H120-H196	H124-H196
81344	M405HF	§ / 15.87 hex	H120-H196	H124-H196
81416	E451	7 ₁₆ /11.11 hex	Extension 12"/304mm	
81428	P441	‡" /6.35mm hex p	oilot drill for mandrels	

Morse taper mandrel adaptors



Fit the regular hex shank mandrels listed above, so they can be driven in Morse Taper Socket.

Ref. No.	Shank (inch)	Fits Mandrel shanks "/mm
A431	2T	⁷ ₆ /11.11 hex
A432	3T	7 ₆ /11.11 hex
A433	3T	§/15.87 hex
	No. A431 A432	No. (inch) A431 2T A432 3T

Nicholson® High Speed Steel Welded Edge Shatterproof

Nicholson engineers have designed and produced a first quality line of hole saws for fast, clean cuts in tough and mild steels, cast iron, aluminum, brass and bronze, plastics, iron or steel pipe and wood. These hole saws are rugged, high speed gang-cutting tools, capable of cutting holes from %"/14mm to 6"/152mm in diameter and up to 1 ½"/28mm deep. The saw follows completely through its own hole.

There are six teeth per inch to the cutting edge, which is made of a specially selected high speed steel, welded to an extremely tough alloy steel back. This, in turn, is welded to the steel body.









		Diameter	Dime	-:	Spe (RP	
Cat INVE	Ref.	Diameter saw	Pipe :	sizes Entrance	Mild	Cast
Cat. N/S No. No	No.	"/mm	"/mm	"/mm	Steel	Iron
81152	H109	3d/ 14.28		_	530	400
81155	H110	 ₹/15.87	_	_	550	365
81158	H111	11/ 17.46	_	_	500	330
81161	H112	₹/19.05	_	3 /9.52	460	300
81164	H113	13/20.63	_	_	425	280
81167	H114	7/22.22	₹/ 19.05	½/ 12.70	390	260
81170	H115	15/23.81		_	370	245
81173	H116	1/25.40			350	235
81176	H117	11/6/26 98	_	_	325	215
81179	H118	1 1/28.57	1/25.40	₹/19.05	300	200
81182	H119	1 ₁₈ /30.16	_		285	190
81188	H120	1 1/31.75			275	180
81191	H121	11/4/33.33	-		260	175
81197	H122	1 3/34.92	_	1/25.40	250	165
81200	H123	1 / √36.51			240	160
81206	H124	1 ½/38.10	1 1/31.75		230	150
81209	H125	1,9/39.68	_		220	145
81212	H126	1 8/41.27	_	_	210	140
81215	H127	111/42.86			205	135
81218	H128	1 3/44.45	1 ½/38.10	1 1/31.75	195	130
81224	H130	1 3/47.62	_		180	120
81227	H132	2/50.80	_	1 ½/38.10	170	115
81230	H133	2 1/52.38	**************************************	_	165	110
81233	H134	2 1/53.97	_		160	105
81236	H136	2 1/57.15	2/50.80	_	150	100
81239	H137	2 15/58.73	_		145	100
81242	H138	2 3/60.32			140	95
81245	H140	2 ½/63.50	_	2/50.80	135	90
81248	H141	2 % 65.08			130	85
81251	H142	2 1/66 67	_		130	85
81254	H144	2 1/69 85			125	80
81257	H146	2 1/73 02	_		120	80
81260	H148	3/76.20		2 ½/63.50	115	75
81263	H150	3 1/79.37			110	70
81266	H152	3 1/82.55	3/76.20	_	105	70
81269	H154	3 3/85.72	_		100	65
81272	H156	3 1/88.90			95	65
81275	H158	3 { 92.07	_	3/76.20	95	60
81278	H160	3 ₹/95 25	3 ½/88.90		90	60
81281	H162	3 1/98.42			90	60
81284	H164	4/101.60		_	85	55
81287	H166	4 1/104 77		3 ½/88.90	80	55
81290	H168	4 1/108		_	80	55
81296	H172	4 1/114.30		4/101.60	75	50
81299	H176	4 1/120.65	_		75	50
81302	H180	5/127			65_	45
81308	H188	5 1/ 139.70			60	40
81314	H196	6/152.40		_	55	35

Nicholson Bandsaws and Power Hacksaws

Band saw blade section

Obtaining maximum blade performance and durability

Performance of all cutting tools can be measured by the tool's ability to cope with (1) heat, (2) shock, (3) abrasion, (4) flexing. Red heat hardness is the cutting tool's capacity to tolerate the heat generated in the cutting operation without destroying the tool's cutting ability. High red heat hardness allows faster tool speeds, heavier feeds and faster cutting rates.

Resistance to shock is the ability to withstand impact blows caused by the vibrations inherent in cutting.

Abrasion resistance is an inherent characteristic of the material used to make the cutting tool and the heat treatment to which this material may be subjected. Wearability of a cutting tool is determined by its abrasion resistance and its hardness after heat treatment.

Flex life is the ability of the band saw blade to withstand repeated flexing around the wheels of the band sawing machine without breaking.

Durability chart

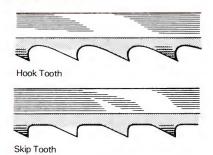
The following chart rates various band saw blades by their red heat hardness, resistance to shock, abrasion resistance and flex life. Red heat hardness is shown in degrees of temperature. Other characteristics are rated 1 through 5, with 1 indicating the highest quality and 5 meaning the lowest on the scale. The 1 through 5 ratings have no exact quantitative value and are used solely for the sake of comparison.

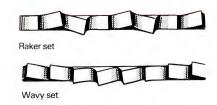
Blade type	Red Heat Hardness	Resistance to Shock	Resistance to Abrasion	Flex Life
Bi-Metaloy I	593°C	2	2	2
Bi-Metaloy III	538°C	3	1	2
Friction bands	204°C	1	5	1
Hard back bands	204°C	2	4	2
Flex back bands	204°C	2	4	3

Band saw blade tooth selection



Regular tooth





A blade for every material and every purpose

Nicholson band saw blades are used on all cut-off and contour band saws. Nicholson blades are milled and set on automatic machines for uniform accuracy. Then they are heat treated under strictest control to the exacting requirements of the Nicholson "gradient hardness process." The razor-sharp tooth tip has a hardness ranging from Rockwell C63-65, with hardness gradually declining toward the tooth base (gullet) to Rockwell C48-50. This gives the tooth sufficient flexibility to prevent breakage and stripping, making the blades ideal for accurate high-production band sawing.

Nicholson saw blades are available with three different standard tooth designs, and three different standard tooth sets.

Tooth design

Regular tooth design has a 0° rake angle and a deep gullet with a smooth radius. This tooth is the most widely used and has the greatest selection of pitches.

Hook tooth design incorporates a 10° positive rake angle to permit greater chip removal without increasing frictional heat. Hardened teeth retain sharpness longer and provide more bite for fast cutting with light feed pessures. Recommended for use on wood, plastics, paper and non-ferrous metals and large cross sections of ferrous metals.

Skip tooth design has a 0° rake angle and provides greater chip clearance for fast, easy cutting of a wide range of materials. The strong, hardened teeth retain a sharp cutting edge and withstand heavy feeding pressures. An all-round choice for cutting wood, plastics and non-ferrous metals.

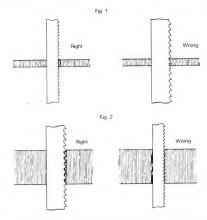
Tooth set

Raker set may be used for all jobs on horizontal and vertical band saws. Available in all three tooth designs.

Wavy set is used for thick sections of varying sizes. It allows the use of a larger pitch by minimizing the danger of tooth stripping. Available only in regular tooth design.

Choosing tooth coarseness

Ideally, at least 3 teeth should be in the work at all times. On very thin materials, at least 2 teeth should be in the material. Figures 1 and 2 illustrate the importance of choosing the appropriate degree of tooth coarseness. The chart on pages 72 and 73 gives exact recommendations for various thicknesses and materials. Fine tooth blades are used for cutting through sections such as sheet metal and light tubing. On harder materials, even finer teeth should be used. A proportionately finer tooth gives a finer finish. Coarsetooth blades are used for cutting heavier sections, for softer and stringy materials and on thin stock at extremely high speeds.



Tooth and speed selection

For hard edge flexible back and hard back blades

W = Wavy H = Hook Tooth R = Raker S = Skip Tooth

Note: In special cases it is recommended to use Velcut set for cutting paper, wood, aluminum, mild steels, and plastics. Recommendations will be supplied on request.

Metals

	33,	." /2.3	8mm	4	″/6.3!	5mm	<u>1</u> "	/12.7	Omm	11	"/31.	75mm	23		35mm	ϵ	5"/15	
Materials	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed
Carbon Steel	24	W	295	18	R	165	14	R	165	8	R	130	6	Н	100	3	Н	100
Nickel Steel	18	R	205	14	R	150	10	R	130	8	R	100	6	R	65	3	Н	65
Chrome Steel	24	R	110	14	R	6 100	10	R	100	8	R	80	6	R	50	6	Н	50
Chrome Nickel Steel	18	R	130	14	R	115	10	R	100	8	R	80	8	R	50	6	Н	50
Stainless Steel	24	W	100	18	R	100	14	R	75	10	R	60	8	R	50	6	Н	50
Chrome-Vanadium Steel	18	R	150	14	R	100	10	R	65	10	R	50_	88	R	50	6	Н	50
High Speed Steel	24	W	130	18	R	100	14	R	100	10	R	65	8	R_	50	6	Н	50
Hardening Steel	18	R	130	14	R	100	10	R	100	8	R	65	6	R	50	6	Н	50
Manganese Alloy Steel	18	R	205	14	R	165	10	R	150	8	R	130	6	R	100	6	Н	65
Molybdenum Alloy Steel	18	R	130	14	R	100	10	R	80	8	R	65	6	R	50	6	Н_	50
Tungsten Alloy Steel	18	R	150	14	R	115	10	R	100	10	R	80	8	R	50	6	Н	50
Armor Plate	18	R	165	14	R	115	14	R	100	10	R	65	8	R	50	6	R	50
Gray Pig Iron	18	R	180	14	R	165	10	R	130	8	R	100	6	R	80	6	R	80
Malleable Cast Iron	18	R	205	14	R	180	10	R	165	10	R	150	8	R	130	6	R	100
High-test Cast Iron	18	R	230	14	R	200	10	R	200	10	R	165	8	R	115	6	R	80
Copper	10	R	2600	6	R	2600	4	S	2300	3	S	1950	3	S	1600	3	S	1300
Electrolytic Copper	14	R	1300	14	R	820	10	R	650	8	R	490	6	R	200	3	S	200
Berylium Alloy Copper	18	R	395	14	R	295	10	R	260	8	R	230	6	R	165	6	Н	100
Mild Brass	10	R	2600	6	R	2600	4	S	2300	3	S	1950	3	S	1600	3	S	1300
Hard Brass	18	R	295	14	R	260	10	R	245	10	R	230	6	R	200	6	Н	130
Mild Bronze	18	R	985	14	R	490	10	R	330	8	R	295	6	R	200	3	S	165
Manganese Bronze	18	R	295	14	R	245	10	R	230	8	R	215	6	R	200	3	Н	165
Aluminum Bronze	18	R	205	14	R	130	10	R	115	8	R	100	6	R	50	3	Н	50
Phosphor Bronze	18	R	490	14	R	425	10	R	395	6	R	295	4	S	260	3	S	200
Aluminum	4	S	3900	3	S	3900	3	S	3900	3	Н	3900	3	Н	3280	2	Н	2600
Duraluminum & Aluminum	4	S	3900	3	S	3900	3	S	3280	3	Н	2600	3	Н	2300	2	Н	1600
Alpax	4	S	3600	3	S	3280	3	Н	2600	3	Н	2300	3	Н	1600	2	Н	1300
Nickel	14	R	165	10	R	100	8	R	100	6	R	80	6	R	50	3	_н_	50
Silver	24	W	245	18	R	245	14	R	230	14	R	200	8	R	150	6	R	115
Lead	8	R	3900	3	S	3600	3	S	3280	3	S	3000	3	S	1950	2	S	1000
Zinc	8	R	3900	4	S	3750	4	S	3600	3	S	3280	2	S	2600	2	S	2300
Magnesium	10	R	3900	4	S	3750	3	S	3600	3	Н	3280	3	Н	2600	3	Н.	2300

Plastics

	3,	·" /2.3	8mm	1	″/6.35	ōmm	1"	/12.7	Omm	11	"/31.	75mm	23	"/69.8	35mm	6	7/152	2mm
Materials	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed
Bakelite	10	R	1600	8	R	1600	8	R	1600	6	R	1600	4	S	1600	3	S	1000
Plexiglas	24	W	3900	10	R	3600	6	R	3280	3	S	3000	3	S	2600	2	S	2300
Cellulose Acetate	18	R	4900	10	R	4900	6	R	4600	4	S	3950	3	S	3750	2	S	3280
Vinyl Resine	14	R	4900	10	R	4900	6	R	4600	4	S	4280	3	S	3950	2	S	3280
Polystyrene	18	R	5250	10	R	5250	6	R	5250	4	S	4900	4	S	4600	3	S	4280
Molded Phenoplast (Synthetic Phenolic Resin) Bakelite	18	R	5250	10	R	5250	6	R	4900	4	S	4280	4	S	3900	2	S	3280
Paper Laminates (Formica) & Textile Laminates (Celoron)	14	R	5250	8	R	5250	6	R	4900	4	S	4260	4	s	3900	2	S	3280
Asbestos Wood Laminates	14	R	4590	10	R	4600	6	R	4260	4	S	4260	4	S	3000	3	S	2300
Ground Wood Laminates	14	R	4900	8	R	4900	6	R	4900	4	S	3900	3	S	3000	2	S	2600

Miscellaneous

	-3 ³	\"/2.3	8mm	1	"/6.3	5mm	1"	/12.7	'Omm	11	"/31.	75mm	23	"/69.8	35mm	6	3"/15:	2mm
Materials	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed	Teeth	Set	Speed
Asbestos	18	R	2130	14	R	1950	4	S	1600	4	S	1600	3	S	1600	3	S	1150
Brake Linings (according to abrasiveness)	10	R	2295	6	R	1800	6	R	1000	4	S	490	3	S	260	3	S	100
Carbon	8	R	4260	6	R	3900	4	S	3900	3	S	3900	2	Н	2600	2	Н	2300
Compressed Paper	18	R	4900	14	R	4900	10	R	4600	8	R	3900	3	Н	3280	3	Н	2600
Compressed Wood	8	R	4900	8	R	4600	6	R	3950	4	S	3900	3	Н	3750	2	Н	3600
Hard Wood	6	R	4900	6	R	4900	6	R	4280	4	S	3950	3	S	3900	3	S	3900
Rubber-Neoprene	14	R	4900	10	R	4900	8	R	4900	6	R	4600	3	Н	3900	3	Н	3280
Mica	32	W	1150	32	W	800	24	R	490	14	R	200	10	R	165	8	R	130
Shatterproof Glass	18	R	990	10	R	330	8	R	230	6	R	130	4	S	80	4	S	33

^{*}Feet per minute

Suggested cutting techniques

Determining proper blade width

For straight cutting, use the widest width that the machine will allow. In contour radius cutting, the radius of the cut and material thickness are guiding factors in selecting blade width. Use the widest width that will cut the radius to be sawed.

Blade speeds

Higher speeds should be used on soft materials, slower speeds on harder materials. Check Nicholson tooth selection chart on pages 72 and 73.

High speed cutting

Speed range 1000 to 5000 S.F.P.M. used on non-ferrous metals, plastic, wood and rubber. Nicholson* skip tooth or hook tooth band saw blades. are recommended.

Blade tension

Blade tension depends on blade width, thickness and type of blade. Blades with hardened backs such as hard back, intermediate alloy and Bi-Metaloy* I and III can be used at twice the tension of hard edge flexible back blades. In general blades should be tensioned so they are taut and track properly. On machines with tension indicators, follow the settings for the width and type of blade.

Feed pressure

Ideal feeding pressure varies according to size and machinability of the material being cut. Slow speed with steady, moderate feed pressure gives maximum blade life. Excessive pressure often dulls the blade, and too light a feed causes the blade to slip over the work, resulting in premature blade wear. Use light feed on thin sections and when using blades \frac{1}{4}"/6mm and under for radius cutting. Hard materials require heavier feed. It is good sawing practice to avoid starting the cut on a sharp corner. When unavoidable, begin the cut with light pressure.

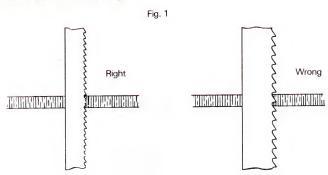
Friction sawing

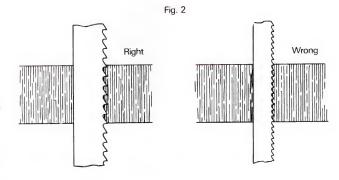
Detailed information is provided in the special purpose friction cutting section on page 80.

Welding and Grinding

- 1. Square ends of the blade before placing in welder.
- 2. Align blade correctly in welder jaws.
- 3. Welder tension adjusting should conform to width of blade.
- 4. After completing weld, reset jaws for annealing.
- 5. Anneal to proper heat. Cool slowly by jogging anneal switch.
- 6. Grind carefully—retain band thickness but make sure weld can pass freely through saw guides.
- 7. Always keep welder jaws clean.

Select the tooth carefully





Saw size	Radius	Materials Thickness 1"/25mm
1"/25mm	7¼"/184mm	
/"/19mm	5½"/138mm	
"/16mm	3¾"/95mm	
½"/13mm	2½"/63mm	
3"/10mm	1‡"/32mm	_
1"/6mm	§"/16mm	
3 / /5mm	³″/-1 0mm	_ / /
1"/3mm	$\frac{7}{32}$ "/5.5mm	
3/3/2 /2.4mm	1"/3mm	
1 1 1 / 1 / 27mm	90°	<u> </u>

Standard sizes for popular machines

Name of Machine	Length Ft. Ins.	Len Name of Machine Ft.	gth Ins.	Ler Name of Machine Ft.	ngth Ins.
Armstrong-BlumNo.8		DoAll3GR,36W,HP-36,C036 20	0	Kalamazoo 30R, 30T	
Armstrong-BlumNo. 81 & 81A		DoAll V-60, ZV-60		Kalamazoo H10A	
Armstrong-Blum High Column		(3 wheels; 3624-X1) 21	2	Kalamazoo 216, 316	
	. 15 8	DoAll Z36, 60-2, 6013-2, CZ-1620 21	3		5
No.8			3	(over 2 wheels)	5
Atkins No. 3		DoAlí 60-3, 60-4, Z-60,		Kalamazoo No. 1220C, 12B, 13AD,	
AtkinsNo.4		6013-3,HS-6013 22	9	13AW, 1220	
Avery Milband	. 14 9	DoAll Z36, 60-2, 6013-2,		Kalamazoo H12B 14	
Black & Decker 3120-21,22-33	. 3 87	CZ-162021	3	Kalamazoo 316 (over 3 wheels) 15	11
(Portable)	. x .020	DoAll 60-3, 60-4, Z-60,		Kalamazoo 14A	6
Boice Crane No. 800	. 7 6	6013-3,HS-6013 22	9	Klemm No. 1	2
Boice Crane No. 2300	. 8 2	DoAll C-2424, 1824 24	3	KlemmNo.2	8
Boice Crane 12"	. 6 5 1	DoAll AC-2016 26	0	Ladlaw CM, CMT	8
Clark Junior & Special	-	DoAll Pan Arm 28	6	Laidlaw JM30, SM30 16	
Clark Compound		Duro A-3027 5	8	Laidlaw Jr. & Special 10	
Crescent B20M		Duro 12‡" 6	6	Laidlaw JM20, SM20, SMT20 11	
		-	8		
Crescent Machine Co. 26"		Duro 12" 6		Laidlaw SMT-30	
Crescent Machine Co. 32"		Duro 15"	8	Laidlaw JM-30F, Dry	
Crescent Machine Co. 36"		Duro 16" 9	3	Marco	6
Davis and Wells Comet	. 11 8	Emerson-Lynn 4500 5	41/2	Marvel 612	10
Delta No. 785 10"	. 6 2	Emerson-Lynn 7126 8	11	Marvel No. 8	8
Delta 12" Wheel	6 6	Famco No. 612 8	9	Marvel No. 8 (high column) 15	8
Delta 14" Wheel	. 7 9	Famco No. 612 8	10	Marvel No. 81, 81A 14	6
Delta 14" Wheel	. 7 9 1	J. A. Fay & Eagon Co. 30" 17	3	Marvel No. 15, 15A	6
Delta 14" Wheel (with	2	J. A. Fay & Eagon Co. 36" 20	6	Meba	51
extension)	. 8 9	Forte 250	0	Milband-Thompson	_
		Gibbes-Kennedy	6	Milband-Thompson	
Delta No. 20		·		·	
Delta Homecraft		Granville 9H	11	Milclark	
DoAllJ		Granville 10H	3	Milwaukee	87
DoAIIJD	. 8 7	Greenlee 521 4	6	Moak 20"	1
DoAllM	. 9 0	Greenlee 346 6	9	Moak 26"	1
DoAll HS, HSV, LHV, SFP, V-16,		Greenlee 348 8	10	Moak 32"	10
ML, Z-16, U-16, P-16, 16-3,		Grob Co. 18 Cut-off Saw	6	Moak 36"	6
LSV, 16-2	10 0	GrobHS-24Hi-Speed 14	4	Monarch 72B, 20" 11	6
DoAll HSV, SFP, HS, LHV, U-16,		GrobNS-18	0	Monarch 61	0
1612-U, 1612-O	10 2	Grob NS-24	4	Monarch X25, 30" 16	8
DoAll 1612-1, 1613-2, 1612-3,		GrobNS-36	10	Monarch 38"	
	10 5	Grob S-14	9	Monarch X40, 36"	11
1612-X1		Grob S-14	9	Mossner SSF-350 9	8
DoAll C-4					
DoAllC-12		Grob 2-24-U	5	Mossner	
DoAllMD	. 11 6	Grob NS60 20	2	NapierB	
DoAll C-41A, C-55, C-56, C-57,		Grob OSN14, OSN20		NapierJr	4
C-58, C-67, C-68, C-69,		(open end)	0	Oliver Mach. Co. No. 2520. 20" 8	8
C-70, C-169, C-170, C-80,		Houghton	6	Oliver Mach. Co. No. 192,	
C-180	12 0	Houghton-Richards 9" Cup S-56 H 13	0	18",192D,18"9	8
DoAll SFP-30, LSV-30, HS-30,		Hedromatic	10 1	Oliver Mach, Co. No. 217, 30" 15	11
HSV-30	13 3	Ideal 9A	1	OliverMach.Co.No.217,20" 16	0
DoAllC-7,C-8,C-8A,3012-U		Johnson 10x18 Model J	5	Oliver Mach. Co. No. 116, 36",	
DoAllMP20		Johnson Jr. Model B	5	416D,36"19	6
			5	Oliver Mach. Co. No. 115D, 38" 20	
DoAllMP20	. 13 8	Johnson B, MB1			O
DoAll V-36, SV36-16, SZ36-3,		Johnson R, MR1	9	Peerless 2216, 1216, 1214, 1216M,	
CG6-3,CCS,ZV-36,V36-3	. 13 10	Johnson HS and HSA	6	1216MH, 1300, Valumatic	
DoAllC-6	. 14 0	Johnson HS and HSA 14	6	12x16, 1400 Accumatic	
DoAll 36-2, 36-3, Z-36	. 14 3	Kalamazoo No. 610C, 610S 7	5	12x16	0
DoAll 3613-0, 36-2, 36-3,		Kalamazoo, 7AD, 7AW, M7AD,		Peerless 1300, Valumatic 12x18,	
3612-3,MX20	. 14 7	M7AW,C7AD 7	5	1400 Accumatic 12x18 12	4
DoAll 3612-3, 3613-2, 3613-1		Kalamazoo 30R, 30T (over 2		Peerless 2400 MS, 4800 MS 14	0
DoAll V-26, 26-2, 2613-2, 2612-1		wheels) 9	3	Peerless 2600	
	. 14 9	Kalamazoo 18V, 18T 9	6	Powermatic 2	
V-60(2 wheels)			J	Powermatic 5, 6, and 8	
DoAll 26-3, 2613-3, 6013-3		Kalamazoo Standard No. 816C,	-		11
DoAll 2618-4		816S,816	5	Powermatic 141 and 143 7	
DoAllTF-24,TF-36	. 17 2	Kalamazoo 24V, 24T 10	6	Powermatic 87, 81 and 89	
DoAll 2626-5, 2624-5	. 17 11	Kalamazoo 20R, 20T 10	10	Powermatic 87, 81, and 89 12	
DoAll 2624-5	18 0	Kalamazoo No. 8C, 8CD, 8CW, 9AD,		Presto	9
		9AW,H9AD,H9AW10	10½	Racine	8
DoAll 26-5					
Doaii 26-5		Kalamazoo Large No. 824, 824A,		Rapid MBS-200 8	10

	Length	Le	ngth	Leng	gth
Name of Machine	Ft. Ins.	Name of Machine Ft.	Ins.	Name of Machine Ft.	Ins.
Rockwell Porta Bond	. 3 87	Tannewitz DiSaw 36MS, 36MH 17	2	Wellsaw Mod. 300 5	0
RockwellMod.6W(20-910)		Tannewitz DiSaw 48M,		Wellsaw Mod. 58B 7	9
RockwellLVC	. 10 10	48MS, 48MH	2	Wellsaw Mod. 600 8	21/2
Rockwell Mod. 7 (20-920),		Tannewitz DiSaw 60M 19	10	Wellsaw Mod. 1270, 1200 13	6
Mod.7A(20-950)	.11 0	Tannewitz DiSaw 60MS, 60MH 22	8	Wellsaw Mod. 14	4
Rockwell Mod. 10 (20-930),		Tannewitz 2400MH	6	Wellsaw Mod. 20 Std 16	0
Mod. 10A (20-960), Mod. 12A		Tannewitz 2400MS	10	Wellsaw Mod. 1224-H 21	8
(20-970)	. 12 6	Tannewitz 3000MS, 3000MH 17	10	Wellsaw Mod. 2400A 32	3
Rockwell Delta 20" (28-345),		Tannewitz 3600MS, 3600MH		Wellsaw Mod. 24008	3
20" (28-340)	. 12 6	(2 wheels)	10	Wespa	0
Roll-In All Purpose		Tannewitz 3600MH (3 wheel) 17	2	Wespa MS-3 8	$\frac{1}{2}$
Roll-In Gravity Feed		Tannewitz 3600MS (3 wheel) 17		Wespa MS-4 9	8
Roll-In Journeyman		Tannewitz 4800MH (2 wheel) 14		Wespa AS-4 ,	2
Rusch		Tannewitz 4800MH (3 wheel) 18	3 2	Wespa AS-6	7
Sawmaster		Tannewitz 6000MS, 6000MH		Wespa AS-9	11
StockbridgeorH&R6"		(2 wheel)	10	Wespa ASH-6	9
Stockbridge or H & R 9"		(3 wheel)		Wespa ASH-9	8
Stockbridge or H & R 12"		Thiele No. 17	3	WespaUS-63	21/2
Tannewitz 24" E, EV		Thompson	5 8	W. F. Wells & Sons Model F14,	
Tannewitz 30", P1, P1E, P3,	. 13 /	Thompson Miband	_	D14,Q14	5
PHE, PV1	. 17 0	Thompson Milband		W. F. Wells & Sons Model W9,	
	. 17	Walker-Turner 12" 6	6	L9.M9.H9	6
Tannewitz 30", PHN, PHNE,	. 17 6	Walker-Turner 14" 8	5 8	W.F. Wells & Sons Model J24 16	9
PV1N, PV1NE	. 17 0	Walker-Turner 16" (MBM1105) 9	8 6 3	W. F. Wells & Sons Model A,	
Tannewitz 36", G, G1E, G3, GH,	. 19 9	Walker-Turner 16" (MCB11513) 9	31	A7,A6	10
GHE, GV1, GV1E, G7	. 19 9	Walker-Turner MCB1160 9	3	W.F. Wells & Sons Mod. QJ24 21	0
Tannewitz 36", GHN, GHNE,	. 20 4	Walker-Turner MNB1105 9	6	W.F. Wells & Sons Mod. X60 20	10
GV1N, GVNE, G1NE	. 20 4	WellsNo.5	21	W.F. Wells & Sons Mod. T40 26	11
Tannewitz 42", R1, R1E, RH,	22 0	Wells No. 7A, 76, 8, 80		Whitney-Stueck A24S, A243,	
RHE, RV1, RV1E, RVTE	. 22 0	WellsNo. 58B	9	A24V,A24F	5
Tannewitz 42", RHN, RHNE,	00 11	WellsNo.9	5	Williamson No. 2, No. 3 20	9
RV1N,RV1NE				WilliamsonNo.324	6
Tannewitz DiSaw 24M	. 13 7	Wells No. 12	0	Wilton 3002, 3003, 3010 5	41
Tannewitz DiSaw 24MS,	14 0		•	Wright No. P, 1, 2, 3	8
24MH, 24M	. 14 6	Wells No. 800, 1000		Wright No.4	0
Tannewitz DiSaw 20MS,		Wells No. 1200	-	vingativo.4	•
30MH,30M		Wells No. 20 Std			
Tannewitz DiSaw 36M	. 16 10	Wells No. 600	2 1		

Bi-Metaloy®

Bi-Metaloy blades consist of a high speed steel edge, electron beam welded to a special alloy steel back. After welding, teeth are milled to a point below the weld line. Bi-Metaloy blades offer perfect sawing accuracy on every known material.

Cutting edge

Two different cutting edge alloys are available in Bi-Metaloy band saw blades. Each alloy provides paraticular characteristics needed for certain types of sawing operations and for various materials.

Backing

The backing material of the Bi-Metaloy band is a special alloy designed to produce maximum tensile strength and resistance to fatigue. This backing allows the use of high blade tensions to provide the ultimate in sawing accuracy.

Bi-Metaloy blades can be welded on standard butt welding

equipment, enabling welds to be made as required by the user. However, blades used on high performance sawing machines, such as the Marvel 81-A, Do-All power saws, the Mill Band, Peerless and the Kalamazoo H-12B, should be produced on heavy duty welding equipment. The requirements imposed on the weld by these and other similar machines are beyond the capacity of welds that can be made on standard welders in the field.



Bi-Metaloy®

The cutting edge of Bi-Metaloy 1 is M-2 high speed steel that has been heat treated to a hardness of 64-65 Rockwell C and is preferred for all general purpose cutting. Bi-Metaloy 1 will outperform solid high speed steel band saw blades by as much as 2



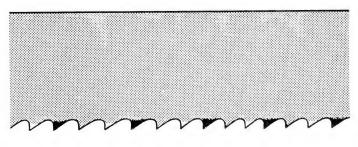
Width	Gauge Inches	Teeth Per Inch	Cat. & N/S Nos. 150'/46m Coil	Welded* Lengths
1/6.35	.035	10 Raker	65001	65009
1/6.35	.035	6 Hook	69131	69139
3/9.52	.035	8 Raker	65021	65029
3/9.52	.035	10 Raker	65031	65039
3/9.52	.035	4 Hook	69141	69149
3/9.52	.035	6 Hook	69151	69159
1/12.70	.025	10 Raker	69171	69179
1/12.70	.025	14 Raker	69201	69209
1 /12.70	.035	6 Raker	69221	69229
½/12.70	.035	8 Raker	69231	69239
1/12.70	.035	10 Raker	65051	65059
1/12.70	.035	14 Raker	69261	69269
1/12.70	.035	3 Hook	69271	69279
1/12.70	.035	4 Hook	69281	69289
1/12.70	.035	6 Hook	65071	65079
₹/19.05	.035	6 Raker	65081	65089
₹/19.05	.035	8 Raker	65091	65099
₹/19.05	.035	10 Raker	65101	65109
₹/19.05	.035	3 Hook	69651	69659
₹/19.05	.035	4 Hook	69661	69669
₹/19.05	.035	6 Hook	69671	69679
1/25.40	.035	4 Raker	65121	65129
1/25.40	.035	6 Raker	65131	65139
1/25.40	.035	8 Raker	65141	65149
1/25.40	.035	10 Raker	65151	65159
1/25.40	.035	3 Hook	65161	65169
1/25.40	.035	4 Hook	65171	65179
1/25.40	.035	6 Hook	69771	69779
1/25.40	.042	4 Raker	69781	69789
1/25.40	.042	6 Raker	69791	69799
1/25.40	.042	3 Hook	69541	69549
11/31.75	.042	4 Raker	69081	69089
11/31.75	.042	6 Raker	69091	69099
11/31.75	.042	8 Raker	69571	69579
11/31.75	.042	3 Hook	69101	69109

*Specify length in feet and inches.

Variable Pitch Bi-Metaloy® I-VP5

Bi-Metaloy blade for high-speed cutting on pipe, tubing, structurals. Reduces vibration and noise.

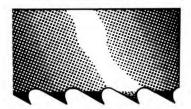
VP5, the newest Bi-Metaloy blade, uses the Variable Pitch design of gradually increasing and decreasing distance between teeth. The variable pitch blade has five increasingly spaced, alternately set teeth, followed by one raker tooth. Then there are five alternately set teeth with decreasing space between each, again followed by one raker tooth. This pattern assures having two teeth in the work at all times, which takes the guesswork out of blade selection and reduces vibration, noise and tooth strippage.



Width	Gauge	Teeth	Cat. & N/S No: 150'/46m	Welded*
"/mm	Inches	Per Inch	Coil	Lengths
3 /19.05	.032	6 VP 5	70601	70609
3 /19.05	.032	8 VP 5	70611	70619
³ /19.05	.032	10 VP 5	70621	70629
3 /19.05	.032	14 VP 5	70631	70639
3 /19.05	.035	6 VP 5	69611	69619
3 /19.05	.035	8 VP 5	69621	69629
3 /19.05	.035	10 VP 5	69641	69649
1/25.40	.035	8 VP 5	69751	69759
1/25.40	.035	10 VP 5	69761	69769
1/25.40	.035	14 VP 5	69741	69749
1/25.40	.035	4 VP 5	70811	70819
1/25.40	.035	6 VP 5	70821	70829
1/25.40	.042	3 VP 5	70801	70809
11/31.75	.042	3 VP 5	70851	70859
11/31.75	.042	4 VP 5	70861	70869
11/31.75	.042	6 VP 5	70921	70929
11/31.75	.042	8 VP 5	70431	70439
1½/38.10	.050	2 VP 5	70511	70519
1½/38.10	.050	3 VP 5	70521	70529
1½/38.10	.050	4 VP 5	70531	70539
1½/38.10	.050	6 VP 5	70541	70549
2/50.80	.050	2 VP 5	70641	70649
2/50.80	.050	3 VP 5	70651	70659
2/50.80	.050	4 VP 5	70661	70669
2/50.80	.050	6 VP 5	70671	70679

Bi-Metaloy® III

Bi-Metaloy III has a cutting edge of M-42 high speed steel that has been heat treated to a hardness of 68-69 Rockwell C to provide the maximum abrasion resistance needed for sawing space-age alloys, hardened materials and stainless steels. This high speed steel tooth retains full hardness during the entire life of the blade.

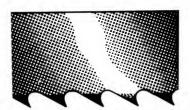


Gauge	Teeth	Cat. & N/S No 150'/46m	os. Welded* Lengths
.035	3 Hook	69801	69809
.035	4 Raker	69811	69819
.035	6 Raker	69821	69829
.035	8 Raker	69831	69839
.035	10 Raker	69841	69849
.042	3 Hook	69851	69859
.042	6 Raker	69861	69869
.042	6 Raker	69871	69879
.042	3 Hook	69881	69889
.042	4 Raker	69891	69899
.042	6 Raker	69901	69909
	.035 .035 .035 .035 .035 .035 .042 .042 .042	Inches	Gauge Inches Teeth Per Inch 150'/46m Coil .035 3 Hook 69801 .035 4 Raker 69811 .035 6 Raker 69821 .035 8 Raker 69831 .035 10 Raker 69841 .042 3 Hook 69851 .042 6 Raker 69861 .042 6 Raker 69871 .042 3 Hook 69881 .042 4 Raker 69891

^{*}Specify length in feet and inches.

Variable Pitch 5 hook (VP5) Bi-Metaloy® III

This versatile blade allows faster production sawing of everything from solids to tubing, reducing the necessity for blade changes and lowering the cost-per-cut. The unique tooth spacing and pitch set of the VP5, as well as its unequaled Bi-Metaloy construction, reduce both vibration and noise while increasing shock resistance and minimizing tooth strippage.



			Cat. & N/S No	
Width	Gauge	Teeth	150′/46m	Welded*
"/mm	Inches	Per Inch	Coil	Lengths
3 /19.05	.035	4 VP 5	65011	65019
₹/19.05	.035	6 VP 5	65041	65049
3 /19.05	.035	8 VP 5	65061	65069
1/25.40	.035	4 VP 5	69721	69729
1/25.40	.035	6 VP 5	69731	69739
1/25.40	.035	8 VP 5	70181	70189
1/25.40	.035	10 VP 5	70171	70179
11/31.75	.042	3 VP 5	69911	69919
11/31.75	.042	4 VP 5	69921	69929
11/31.75	.042	6 VP 5	69931	69939
11/31.75	.042	8 VP 5	70191	70199
11/38.10	.050	2 VP 5	69961	69969
11/38.10	.050	3 VP 5	69981	69989
11/38.10	.050	4 VP 5	69971	69979
11/38.10	.050	6 VP 5	69991	69999
2/50.80	.050	2 VP 5	65211	65219
2/50.80	.050	3 VP 5	65221	65229
2/50.80	.050	4 VP 5	65231	65239
2/50.80	.050	6 VP 5	65241	65249

^{*}Specify length in feet and inches.

Hard back

Hard back was developed by Nicholson[®] to increase production and save time on tough jobs, such as cutting structural shapes where guides must be set some distance apart in relation to thickness or material being cut.

Added beam strength, plus increased tensioning, provide greater rigidity for more efficient and economical use in most applications requiring heavy feed pressures. Especially recommended for cutoff and contour sawing.

A faster, straighter-cutting band saw. No premature fatigue. No side scoring, peening, swedging or loss of time through breakage. On cut-off work, often three times as efficient as regular blades.



Width "/mm	Gauge	Teeth Per Inch	Catalog & 100'/30.5m Coil	Nida/Sida Nu 250′/76m Coil	mbers Welded* Lengths
	.025	10 Raker	66181	66182	66189
1/6.35	.025	14 Raker	66201	66202	66209
1/6.35		18 Raker	66211	66212	66219
1/6.35	.025		66221	66222	66229
1/6.35	.025	24 Raker		66272	66279
1/6.35	.025	4 Skip	66271		66289
1/6.35	.025	6 Skip	66281	66282	
1/6.35	.025	4 Hook	66241	66242	66249
1 /6.35	.025	6 Hook	66251	66252	66259
∄/9.52	.025	8 Raker	66291	66292	66299
₹/9.52	.025	10 Raker	66301	66302	66309
 ₹/9.52	.025	14 Raker	66321	66322	66329
₹/9.52	.025	18 Raker	66331	66332	66339
ਭੋ/9.52	.025	4 Skip	66401	66402	66409
₹/9.52	.025	4 Hook	66361	66362	66369
₹/9.52	.025	6 Hook	66371	66372	66379
½/12.70	.025	6 Raker	66451	66452	66459
½/12.70	.025	10 Raker	66471	66472	66479
₹/12.70	.025	14 Raker	66491	66492	66499
} /12.70	.025	18 Raker	66501	66502	66509
½/12.70	.025	24 Raker	66511	66512	66519
½/12.70	.025	10 Wavy	66521	66522	66529
2 /12.70	.025	14 Wavy	66531	66532	66539
½/12.70	.025	24 Wavy	66541	66542	66549
3 /12.70	.025	3 Skip	66591	66592	66599
3/12.70	.025	4 Skip	66601	66602	66609
3/12.70	.025	3 Hook	66551	66552	66559
3/12.70	.025	4 Hook	66561	66562	66569
½/12.70 ½/12.70	.025	6 Hook	66571	66572	66579
½/12.70 ½/15.87	.032	8 Raker	66641	66642	66649
	.032	10 Raker	66651	66652	66659
\$/15.87		14 Raker	66671	66672	66679
§/15.87	.032	18 Raker	66681	66682	66689
§/15.87	.032		67091	67092	67099
§/15.87	.032	14 Wavy	66701	66702	66709
₹/19.05	.032	6 Raker		66712	66719
₹/19.05	.032	8 Raker	66711		66729
<u></u> ₹/19.05	.032	10 Raker	66721	66722	
₹/19.05	.032	12 Raker	66731	66732	66739
1 /19.05	.032	14 Raker	66741	66742	66749
1 /19.05	.032	8 Wavy	66761	66762	66769
<u>₹</u> /19.05	.032	10 Wavy	66771	66772	66779
3 /19.05	.032	12 Wavy	66781	66782	66789
3 /19.05	.032	14 Wavy	66791	66792	66799
³ /19.05	.032	18 Wavy	66801	66802	66809
3 /19.05	.032	3 Skip	66861	66862	66869
3 /19.05	.032	3 Hook	66821	66822	66829
3 /19.05	.032	6 Hook	66841	66842	66849
1/25.40	.035	6 Raker	66901	66902	66909
1/25.40	.035	8 Raker	66911	66912	66919
1/25.40	.035	10 Raker	66921	66922	66929
1/25.40	.035	14 Raker	66931	66932	66939
1/25.40	.035	10 Wavy	66941	66942	66949
1/25.40	.035	2 Hook	66961	66962	66969
1/25.40	.035	3 Hook	66971	66972	66979
11/23.40	.042	6 Raker	_	_	67019

^{*}Specify length in feet and inches.

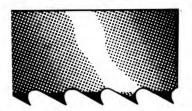
Hard edge flexible back

Magicut* blades for smooth, efficient performance. Nicholson* hard edge flexible back blades are recommended for contour machines run in the high speed range of 500 to 5000 S.F.M. The hard edge flex back blade offers greater flex life in contour cutting of wood, plastic, paper and non-ferrous metals.

Width	Gauge	Teeth	100′/30.5	g & Nida/Sida f 50m 250′/76.2	Om Welded*	Width	Gauge	Teeth	100′/30.5	g & Nida/Sida f 50m 250′/76.2	Om Welded*
<u>"/mm</u>	Inches	Per Inch	Coil	Coil	Lengths	"/mm	Inches	Per Inch	Coil	Coil	Lengths
16/1.58	.025	24 Raker	67111		67119	$\frac{1}{2}/12.70$.025	18 Wavy	67891	67892	67899
$\frac{1}{16}/1.58$.025	24 Raker	67121	_	67129	$\frac{1}{2}/12.70$.025	24 Wavy	67901	67902	67909
$\frac{1}{16}/1.58$.025	32 Wave	67131		67139	½/12.70	.025	2 Hook	67911	67912	67919
⅓/3.17	.025	14 Raker	67181		67189	$\frac{1}{2}/12.70$.025	3 Hook	67921	67922	67929
½/3.17	.025	18 Raker	67191		67199	$\frac{1}{2}/12.70$.025	4 Hook	67931	67932	67939
⅓/3.17	.025	24 Raker	67201		67209	$\frac{1}{2}/12.70$.025	6 Hook	67941	67942	67949
$\frac{3}{16}$ /4.76	.025	10 Raker	67221	67222	67229	$\frac{1}{2}/12.70$	0.32	2 Hook ETS	_	70322	70329
$\frac{3}{16}$ /4.76	.025	14 Raker	67231	67232	67239	$\frac{1}{2}/12.70$	0.32	3 Hook ETS	_	68002	68009
$\frac{3}{16}/4.76$.025	18 Raker	67241	67242	67249	½/12.70	.025	3 Skip	67961	67962	67969
$\frac{3}{16}$ /4.76	.025	24 Raker	67251	67252	67259	$\frac{1}{2}/12.70$.025	4 Skip	67971	67972	67979
$\frac{3}{16}/4.76$.025	4 Skip	67291	67292	67299	$\frac{1}{2}/12.70$.025	6 Skip	67981	67982	67989
$\frac{3}{16}/4.76$.025	6 Skip	67301	67302	67309	§/15.87	.032	8 Raker	68071	68072	68079
1/6.35	.025	10 Raker	67341	67342	67349	§/15.87	.032	10 Raker	68081	68082	68089
1/6.35	.025	12 Raker	67351	67352	67359	§/15.87	.032	14 Raker	68101	68102	68109
1/6.35	.025	14 Raker	67361	67362	67369	§/15.87	.032	18 Raker	68111	68112	68119
1/6.35	.025	18 Raker	67371	67372	67379	§/15.87	.032	10 Wavy	68141	68142	68149
1/6.35	.025	24 Raker	67381	67382	67389	\$/15.87	.032	14 Wavy	68161	68162	68169
1/6.35	.025	14 Wavy	67391	_	67399	§/15.87	.032	4 Hook	68181	68182	68189
1/6.35	.025	32 Wavy	67421	67422	67429	\$/15.87	.032	3 Skip	68201	68202	68209
1/6.35	.025	4 Hook	67441	67442	67449	½/15.87	.032	4 Skip	68211	68212	68219
1/6.35	.025	4 Hook ETS		70302	70309	½/19.05	.032	6 Raker	68241	68242	68249
½/6.35	.032	4 Hook ETS		67532	67539	₹/19.05	.032	8 Raker	68251	68252	68259
½/6.35	.032	6 Hook	67451	67452	67459	₹/19.05	.032	10 Raker	68261	68262	68269
	.025	4 Skip	67491	67492	67499	3/19.05	.032	12 Raker	68271	68272	68279
1/6.35		6 Skip	67501	67502	67509	½/19.05 ½/19.05	.032	14 Raker	68281	68282	68289
½/6.35	.025		67541	67542	67549	₹/19.05	.032	18 Raker	68291	68292	68299
₹/9.52	.025	8 Raker							68301	68302	68309
₹/9.52	.025	10 Raker	67551	67552	67559	³ /19.05	.032	8 Wavy			68319
₹/9.52	.025	12 Raker	67561	- 07570	67569	₹/19.05	.032	10 Wavy	68311	68312	
₹/9.52	.025	14 Raker	67571	67572	67579	½/19.05	.032	12 Wavy	68321	68322	68329
₹/9.52	.025	18 Raker	67581	67582	67589	³ /19.05	.032	14 Wavy	68331	68332	68339
₹/9.52	.025	24 Raker	67591	67592	67599	¾/19.05	.032	18 Wavy	68341	68342	68349
<u></u> ₹/9.52	.025	3 Hook	67631	67632	67639	₹/19.05	.032	2 Hook	68371	68372	68379
₹/9.52	.025	4 Hook	67641	67642	67649	₹/19.05	.032	3 Hook	68381	68382	68389
₹/9.52	.025	6 Hook	67651	67652	67659	₹/19.05	.032	4 Hook	68391	68392	68399
₹/9.52	.025	3 Skip	67681	67682	67689	³ /19.05	.032	6 Hook	68401	68402	68409
₹/9.52	.025	4 Skip	67691	67692	67699	₹/19.05	.032	3 Skip	68441	68442	68449
§/9.52	.025	6 Skip	67701	67702	67709	₹/19.05	.032	4 Skip	68461	68462	68469
$\frac{3}{8}/9.52$.025	4 Hook ETS		70312	70319	₹/19.05	.032	3 Bana	68451	68452	68459
₹/9.52	.032	3 Hook ETS	_	67712	67719	1/25.40	.035	4 Raker	68521	68522	68529
½/12.70	.020	10 Raker	67721	67722	67729	1/25.40	.035	6 Raker	68531	68532	68539
½/12.70	.020	14 Raker	67731	67732	67739	1/25.40	.035	8 Raker	68541	68542	68549
½/12.70	.020	18 Raker	67741	67742	67749	1/25.40	.035	10 Raker	68551	68552	68559
1 /12.70	.020	24 Wavy	68981	68982	68989	1/25.40	.035	14 Raker	68571	68572	68579
½/12.70	.025	4 Raker	67771	67772	67779	1/25.40	.035	10 Wavy	68581	68582	68589
½/12.70	.025	6 Raker	67781	67782	67789	1/25.40	.035	2 Hook	68591	68592	68599
½/12.70	.025	8 Raker	67791	67792	67799	1/25.40	.035	3 Hook	68601	68602	68609
$\frac{2}{1}$ /12.70	.025	10 Raker	67801	67802	67809	1/25.40	.035	4 Hook	68611	68612	68619
$\frac{2}{1}$, 12.70	.025	12 Raker	67811	67812	67819	1/25.40	.035	6 Hook	68621	68622	68629
$\frac{1}{2}/12.70$.025	14 Raker	67821	67822	67829	1/25.40	.035	2 Skip	68661	68662	68669
		18 Raker	67841	67842	67849	1/25.40	.035	3 Skip	68671	68672	68679
$\frac{1}{2}/12.70$.025			67852	67859	1/25.40	.035	4 Skip	68681	68682	68689
$\frac{1}{2}/12.70$.025	24 Raker	67851					6 Raker	68801	68802	68809
$\frac{1}{2}/12.70$.025	10 Wavy	67871	67872	67879	11/31.75	.042.		68811	68812	68819
½/12.70	.025	14 Wavy	67881	67882	67889	11/31.75	.042	8 Raker			
*Specify le	ngth in feet and	d inches.				11/31.75	.042	3 Skip	68841	68842	6884

* Hard edge flex back variable pitch for wood

These specially designed blades give better performance and standard tooth style while reducing noise and vibration. They are recommended for production cutting of wood and other nonferrous material when noise or vibration is a problem. They replace the velcut tooth style of the past.



			C-talas 9	Nide (Cide Numb	2050
Width "/mm	Gauge Inches	Teeth Per Inch	100'/30.50m Coil	Nida/Sida Numl 250'/76.20m Coil	Welded** Lengths
1/6.35	.025	4 VP Hook	70701	70702	70709
1/6.35	.032	4 VP Hook	70711	70712	70719
3/9.52	.025	3 VP Hook	70721	70722	70729
3/9.52	.025	4 VP Hook	70731	70732	70739
₹/9.52	.032	3 VP Hook	70741	70742	70749
3 /9.52	.032	4 VP Hook	70751	70752	70759
½/12.70	.025	4 VP Hook	70761	70762	70769
1 /12.70	.032	3 VP Hook	70771	70772	70779
3 /19.05	.032	3 VP Hook	70781	70782	70789
1/25.40	.035	3 VP Hook	70791	70792	70799
1 /6.35	.025	4 Hook ETS	_	70302	70309
1 /6.35	.032	4 Hook ETS	_	67532	67539
₹/9.52	.025	4 Hook ETS	_	70312	70319
3 /9.52	.032	3 Hook ETS	_	67712	67719
½/12.70	.032	2 Hook ETS	_	70322	70329
½/12.70	.032	3 Hook ETS		68002	68009

^{* *} Specify length in feet and inches.

Friction cutting

Friction sawing, at blade speeds from 5000 to 15000 feet per minute, is one of the fastest, most economical methods of cutting ferrous metals up to $\frac{1}{2}$ "/12.70mm thick. The frictional heat, generated by the high velocity of the blade, softens the metal being cut. The saw tooth then removes this softened film of metal in the form of red-hot chips.

Nicholson[®] friction blades are engineered to withstand the heat generated in friction sawing and provide the strength needed to withstand heavy feeds and high speeds.

Nicholson friction blades assure the most efficient metal removal in shaping and trimming stainless, monel and armor plate. They are recommended for use on sturdy machines with large diameter wheels.

For specific recommendations on friction cutting of materials over $\frac{1}{2}$ "/12.70mm thick, consult your Nicholson sales engineer through your Nicholson distributor, or write to Nicholson directly.

			Catalog & Nida/Sida Numbers			
Width	Gauge	Teeth	100′/30.50m	250'/76.20m	Welded*	
"/mm	Inches	Per Inch	Coil	Coil	Lengths	
½/12.70	.032	10 Raker	68891	68892	68899	
½/12.70	.032	14 Raker	68901	68902	68909	
- {15.87	.035	10 Raker	68911	68912	68919	
§/15.87	.035	14 Raker	68921	68922	68929	
3 /19.05	.035	10 Raker	68931	68932	68939	
₹/19.05	.035	14 Raker	68941	68942	68949	
1/25.40	.035	10 Raker	68951	68952	68959	
1/25.40	.035	14 Raker	68961	68962	68969	

^{*} Specify length in feet and inches.

Butcher band saw blades

Nicholson Butcher band saw blades have light gauge and light set with large gullets for fast, easy cutting with minimum kerf loss.

			Catalog &	Nida/Sida Numb	pers
Width "/mm	Gauge Inches	Teeth Per Inch		250'/76.20m Coil	Welded* Lengths
§/15.87	.020	4 Butcher	68041	68042	68049
§/15.87	.025	4 Butcher	68061	68062	68069

^{*}Specify lengths in feet and inches.

Blades for portable band saw machines

Nicholson blades for portable band saw machines are made to ensure peak efficiency and performance on machines such as those by Milwaukee Electric Tool, Porter-Cable and Rigid Tool.



Available custom welded in the following specifications:

Width	Gauge		Teeth		Cat. /N/S
"/mm	Inches	Length	Per Inch	Туре	No. /No.
1/12.70	.020	3'87"	10 Raker	Bi-Metaloy I	69169
1/12.70	.020	3'/87"	14 Raker	Bi-Metaloy I	69189
1/12.70	.020	3'87"	18 Raker	Bi-Metaloy I	69199
1/12.70	.020	3'87"	10 Raker	Flex Back	67729
1/12.70	.020	3'87"	14 Raker	Flex Back	67739
1/12.70	.020	3'87"	18 Raker	Flex Back	67749
½/12.70	.020	3'8{}"	24 Wavy	Flex Back	68989

All flex back blades are packaged 10 per master carton only.

^{*}Replaces flexible back bandsaw with velcut set and E.T.S.

Blade comparison chart

Carbon steel

Hard edge flex back	Hard edge hard back
Hard edge	Hard back
Die-Master	Neo-Type
Hard edge flex back	Hard back hard edge
Flex back	Hi-Flex
Flex back hard tooth	Tuf-back
Flex back	Tru-Cut
Hard edge	Tri-Temp
Flex back hard edge	Temper back
Precision standard carbon	Dart
Tuf-Flex.	Tuf-Temper
Hard edge	Si-Met
Spar-Cut	Flexard
Hard Edge Flex Back	Premium
Flex Back	Super TT-44
	Hard edge Die-Master Hard edge flex back Flex back Flex back hard tooth Flex back Hard edge Flex back hard edge Precision standard carbon Tuf-Flex. Hard edge Spar-Cut Hard Edge Flex Back

Welded edge

M2	M41 or M42
Bi-Metaloy® I	Bi-Metaloy [®] III
Electron Weld	Super Electron Weld
High Speed Welded Edge	Cobalt H.S. edge
Gold Line Bi-Metal	
Super T Weld	
Welded Tooth	
Super Weld	
Bi Metal	
Imperial 100	Imperial 101
Blu-Mol Welded Edge	
Weld Edge	Weld Edge
Saf-T-Edge	Cobalt H.S. Edge
Powerband	
Rezistor Bi-Band	Cobra

Solutions to band saw problems

Chipped teeth

- 1. Blade too coarse for material being cut. Use finer tooth blade.
- 2. Feed pressure too heavy in relation to blade speed. Either decrease feed or increase speed slightly.

Stripped teeth

- 1. Blade too coarse for material being cut chip load is too heavy per tooth. Change to finer tooth blade.
- 2. Blade too fine chips loading in gullets. Change to a coarser tooth blade.
- 3. Irregular feed pressure. Check hydraulic system for air in the lines or dirty oil.
- 4. Excessive feed pressure, causing loading. Reduce pressure.
- 5. Not enough speed, causing shock, increase speed.
- 6. Hard spots in the material causing shock, increase feed pressure.

Premature wear

- 1. Excessive blade speed or excessive feed pressure. Balance blade speed and feed pressure.
- 2. Insufficient blade tension causing blade to cock slightly, preventing straight cut. Increase blade tension.
- 3. Insufficient cutting fluid, wrong type of cutting fluid, or concentration of cutting fluid allows excessive heat to be generated at the tooth tips, reducing wear resistance. Cutting fluid should be the proper type for the material being cut.

Blade breakage

- 1. Improper blade tension. Check with pressure gauge or tension measuring device.
- 2. Worn back-up bearings and/or worn side guides. Replace worn parts and make sure side guides have been accurately ground for parallel position.
- 3. Excessive blade speed. The faster a blade is run, the sooner it will fatigue. Flexing around the wheels induces fatigue, a common problem to all high speed bands. Reduce blade speed slightly and reset feed pressure to maintain cutting rate.
- 4. Excessive feed pressure. Reduce pressure.

Crooked cuts

- 1. Improper guide adjustment or worn faces on side of guides. Guides should not be too tight. Machines using high performance bands must be equipped with carbide-faced guides to minimize wear and support the blade properly. The thrust bearing should be checked against freezing or grooving. Replace if worn more than .020" or chipped.
- Chips welding to teeth due to inadequate chip removal or improper cutting fluid. Check chip brush to be sure it is removing chips properly. Check cutting fluid to be sure it is providing adequate lubrication and chip removal.
- 3. Excessive feed pressure. Reduce pressure.
- 4. Insufficient blade tension. Check tension with pressure gauge.
- 5. Improper blade alignment. Check alignment of flange type wheels.

Rough cutting

- 1. Improper tooth selection. See tooth selection chart on pages 72 & 73.
- 2. Bad set-up. Support work more firmly.

Blade edge sweeping

- 1. Worn back-up guides. Replace.
- 2. Back-up guide fails to rotate. Replace or clean to allow free rotation.
- 3. Excessive feed pressure. Reduce.
- 4. Blade too close to flanges. Adjust.

Blade vibration

1. Harmonics. Change feed, speed or tooth.

Chips welding to teeth

- 1. Brush not operating. Check it closely.
- 2. Excessive feed. Reduce.
- 3. Speed too high. Reduce.
- Improper cutting fluid or insufficient cutting fluid. Increase amount of cutting fluid, increase concentration of cutting fluid or change to the proper cutting fluid.

Note: Water soluble or synthetic coolants should be mixed 5:1 (5 parts water to 1 part coolant concentrate). Improper coolant mix or application may cause chip welding, chipped teeth, blade breakage or premature wear.

Power hacksaw blades

Power hack sawing is an extremely economical and efficient method of separating metal. To get maximum performance it is necessary to operate the machine correctly and to maintain it in the best possible condition. Select the correct blade — the type of power blade to use is largely determined by the material to be cut. Its proper selection pays dividends. Combine with it the correct tooth specification, speed and feed and you get maximum cutting and longer blade life. There is a particular blade best suited for certain types of cutting. Three Nicholson power blades, produced

from quality high speed steel, have been developed. There is a Nicholson power blade for your machine sawing job.

The Nicholson power blade selector is a useful guide. Remember that tooth selection may vary according to individual machines as well as specific applications. Where two or more specifications are given, tooth is determined by size and shape of material being cut. Width of blade is determined by usage, the design of machine, length of blade and feed to be applied. Narrow blades are used for normal duty. Wide blades are

preferable for heavy duty cutting of multiple bars or longer cross sections.

General recommendations for power machine use

 $\ensuremath{\mathtt{3}}$ Tooth: Greatest chip clearance for large sections to increase tooth penetration.

. 4 Tooth: Has geater chip clearance which enables faster cutting on large or readily machined metals.

6 Tooth: Frequently used for machining the harder alloys as well as for miscellaneous sawing.

10-14 Tooth: The majority of light duty power saws use 10-Tooth and 14-Tooth saws because application is limited to smaller sections. Blade speed in power sawing ranges from 60–150 strokes per minute. In cutting of soft metals, a speed up to the maximum 150 strokes may be employed. Lower speeds are advisable when the material to be cut is not

readily machinable — and will be most efficient in production and increased blade life. Excessive feed and blade speed increase the rate of cutting but add to blade cost. Many times it is economical to sacrifice maximum blade life in order to get utmost production at reduced operating cost. Moderate feed pressure is recommended for soft materials and light cross sections. Moderate feed is also suggested when using a fine tooth to minimize clogging.

Increased feed is required on harder materials and heavier sections. Increased feed may be used with coarse tooth blades to give maximum production on softer materials.

Reduced feed is frequently necessary on positive feed power hack saw machines as cross sections increase and machinability decreases. It is good sawing practice to avoid starting the cut on a sharp corner. If unavoidable, begin with light pressure.

Nicholson® power blade tooth selector

Material	Teeth	Strokes Per Minute
Ferrous		
Drill Road	10	90
Forging Stock, Alloy	4-6	90
Forging Stock, Mild	3-4-6	120
High Temperature Alloys	3-4-6	30-90
Iron, Cast	6-10	90-120
Iron, Malleable	6-10	90
Rails	6-10	60-90
Steel, Alloy	4-6	60-90
Steel, Carbon Tool	4-6	90-120
Steel, High Speed	6-10	60-90
Steel, Machinery	3-4-6	90-120
Steel, Stainless	3-4-6	30-90
Steel, Structural	6-10	90-120
Steel Die Blocks	4-6	30-90

	Teeth	Strokes Per Minute
Material		
Steel Pipe	6-10	120
Tubing, Thick Wall	6-10	120
Tubing, Thin Wall	14	120
Non Ferrous		
Aluminum	3-4-6	120
Babbitt	4-6	120
Brass Castings, Hard	4-6	90-120
Brass Castings, Soft	4-6	120
Bronze Castings	4-6-10	90
Bronze, Manganese	6-10	60-90
Copper Bars	3-4-6	90
Copper Tubing	10	120
Monel Metal	4-6	60-90
		A serve town

The use of cutting compound is recommended on all ferrous metals except cast iron.

Welded edge shatterproof

This is a shatterproof and unbreakable power blade which satisfies every safety requirement. Because the tough alloy steel of the blade's back can support any cutting load demanded of the hardened edge-teeth, the blade need not be "babied" and can be used by inexperienced operators as well as skilled machinists. The narrow high speed steel cutting edge that is welded to the tough alloy steel back has the ultimate hardness of an all hard blade together with its extremely long life expectancy.



Cat /N/S No /No.	Blade No.	Length "/mm	Width "/mm	Gauge Inch	Teeth per inch	Wt. Per 100 in lb/kg
60001	WE-1210-5	12/304	1/25.40	.050	10	20/9.07
60007	WE-1214-5	12/304	1/25.40	.050	14	23/10.43
60013	WE-1410-5	14/354	1/25.40	.050	10	23/10.43
60025	WE-1414-5	14/354	1/25.40	.050	14	23/10.43
60037	WE-1406-6	14/354	11/31.75	.062	6	35/15.87
60051	WE-1410-6	14/354	11/31.75	.062	10	35/15.87
60075	WE-1404-7	14/354	1 1/38.10	.075	4	51/23.13
60087	WE-1406-7	14/354	1½/38.10	.075	6	51/23.13
60128	WE-1710-5	17/380	1/25.40	.050	10	28/12.70
60134	WE-1714-5	17/380	1/25.40	.050	14	28/12.70
60152	WE-1706-6	17/380	1 ⅓/31.75	.062	6	43/19.50
60164	WE-1710-6	17/380	11/31.75	062	10	43/19.50
60176	WE-1806-6	18/456	11/31.75	.062	6	45/20.41
60188	WE-1810-6	18/456	11/31.75	.062	10	45/20.41
60212	WE-1804-7	18/456	1½/38.10	.075	4	64/29.02
60224	WE-1806-7	18/456	1 ½/38.10	.075	6	64/29.02
60248	WE-1804-8	18/456	13/44.45	.088	4	88/39.91
60262	WE-1806-8	18/456	13/44.45	.088	6	88/39.91
60301	WE-2104-8	21/532	13/44.45	.088	4	104/47.17
60315	WE-2106-8	21/532	13/44.45	.088	6	104/44.77
60356	WE-2406-8	24/608	13/44.45	.088	6	125/56.69
60368	WE-2403-0	*24/608	2/50.80	.100	3	49/67.58
60380	WE-2404-0	*24/608	2/50.80	.100	4	149/67.58
60416	WE-3004-0	30/760	21/63.50	.100	4	231/104.78

^{*}On 24"/608mm x .100 blades $\frac{24}{64}$ "/9.92mm holes is standard.

All hard Molybdenum

Distinguished for its unusually accurate cutting qualities and long life on extended production runs, this blade is recommended for use on low and medium alloy steels up through the tough and abrasive varieties. Each blade is individually inspected to assure maximum performance.

The all hard characteristic of the blade makes it well adapted for straight cuts. It is typically Nicholson* in high quality.



Cat./N/S No./No.	Blade No.	Length "/mm	Width "/mm	Gauge "/mm	Teeth per Inch	Wt. Per 100 in lb/kg
60839	MN1214-3	*12/304	§/15.87	.032	14	7½/3.40
60853	MN1218-3	12/304	§/ 15.87	.032	18	7½/3.40
60867	MN1210-5	12/304	1/25.40	.050	10	19/8.61
60881	MN1214-5	12/304	1/25.40	.050	14	19/8.61
60895	MN1410-5	14/354	1/25.40	.050	10	21/9.52
60909	MN1414-5	14/354	1/25.40	.050	14	21/9.52
60923	MN1406-6	14/354	11/31.75	.062	6	32/14.51
60937	MN1410-6	14/354	11/31.75	.062	10	32/14.51
60963	MN1404-7	14/354	$1\frac{1}{2}/38.10$.075	4	46/20.86
60977	MN1406-7	14/354	$1\frac{1}{2}/38.10$.075	6	46/20.86
61019	MN1710-5	17/380	1/25.40	.050	10	25/11.83
61032	MN1714-5	17/380	1/25.40	.050	14	25/11.33
61046	MN1704-6	17/380	11/31.75	.062	4	39/17.69
61058	MN1706-6	17/380	1 1/31.75	.062	6	39/17.69
61072	MN1710-6	17/380	11/31.75	.062	10	39/17.69
61092	MN1806-6	18/456	11/31.75	.062	6	40/18.47
61106	MN1810-6	18/456	1 1/31.75	.062	10	40/18.47
61133	MN1804-7	18/456	$1\frac{1}{2}/38.10$.075	4	59/26.76
61147	MN1806-7	18/456	1 ½/38.10	.075	6	59/26.76
61173	MN 1804-8	18/456	1 3/44.45	.088	4	84/38.10
61187	MN1806-8	18/456	1 3/44.45	.088	6	84/38.10
61241	MN2104-8	21/532	1 3/44.45	.088	4	95/43.09
61255	MN2106-8	21/532	13/44.45	.088	6	95/43.09
61313	MN2403-0	24/608	2/50.80	.100	3	142/64.41
61325	MN2404-0	**24/608	2/50.80	.100	4	142/64.41

^{*}Can be used in hand frame as heavy duty hand hacksaw blade.

All hard Tungsten

In power sawing there are a substantial number of situations in which the use of a premium priced blade is fully justified. When such circumstances do exist the choice of our all hard Tungsten will repay the user, in turn, with dividends of better work, increased production and lower overall sawing costs. This all hard Tungsten is exceptionally effective on dense and very abrasive materials, such as high manganese steels, stainless steels, and certain bronzes.



	Blade No.	Length "/mm	Width "/mm	Gauge "/mm	Teeth per Inch	Wt. Per 100 in lb/kg
62144	TN1214-3	12/304	§/ 15.87	.032	14	8/3.62
62157	TN1218-3	12/304	₹/15.87	.032	18	8/3.62
62170	TN1210-5	12/304	1/25.40	.050	10	20/9.07
62183	TN1214-5	12/304	1/25.40	.050	14	20/9.07
62196	TN1410-5	14/354	1/25.40	.050	10	23/10.43
62209	TN1414-5	14/354	1/25.40	.050	14	23/10.43
62222	TN1406-6	14/354	11/31.75	.062	6	35/15.87
62235	TN1410-6	14/354	11/31.75	.062	10	35/15.87
62257	TN1404-7	14/354	1½/38.10	.075	4	50/22.67
62266	TN1406-7	14/354	1½/38.10	.075	6	50/22.67
62316	TN1710-5	17/380	1/25.40	.050	10	27/12.24
62325	TN1714-5	17/380	1/25.40	.050	14	27/12.24
62352	TN1710-6	17/380	11/31.75	.062	10	42/19.05
62365	TN1806-6	18/456	11/31.75	.062	6	44/19.95
62378	TN1810-6	18/456	11/31.75	.062	10	44/19.95
62400	TN1804-7	18/456	1½/38.10	.075	4	64/29.02
62409	TN1806-7	18/456	$1\frac{1}{2}/38.10$.075	6	64/29.02
62435	TN1804-8	18/456	13/44.45	.088	4	90/40.32
62448	TN1806-8	18/456	13/44.45	.088	6	90/40.82
62496	TN2104-8	21/532	13/44.45	.088	4	103/46.72
62509	TN2106-8	21/532	13/44.45	.088	6	103/46.72
62549	TN2406-8	24/608	13/44.45	.088	6	119/53.97
62571	TN2404-0**	24/608	2/50.80	.100	4	152/68.94

^{*}Can be used in hand frame as heavy duty hand hacksaw blade.

^{**}On 24"/608mm x .100 blades 25"/9.92mm hole is standard.

^{*}On 24"/608mm x .100 blades $\frac{25}{64}$ "/9.92mm hole is standard.

Metric all hard molybdenum Export Only



Cat /N/S No./No.	Blade No.	Length x Width x Gauge	Teeth per Inch	Wt. per 100 in lb/kg
61387	MN1210-5-1	300 x 25 x 1.25	10	19/8.61
61399	MN1214-5-1	300 x 25 x 1.25	14	19/8.61
61447	MN1410-5-1	350 x 25 x 1.25	10	21/9.52
61459	MN1414-5-1	350 x 25 x 1.25	14	21/9.52
61484	MN1406-6-11	350 x 30 x 1.60	6	32/14.51
61496	MN1410-6-14	350 x 30 x 1.60	10	32/14.51
61556	MN1610-5-1	400 x 25 x 1.25	10	24/10.88
61568	MN1614-5-1	400 x 25 x 1.25	14	24/10.88
61628	MN1610-6-11	400 x 25 x 1.60	6	30/13.60
61640	MN1610-6-11	400 x 25 x 1.60	10	30/13.60
61712	MN1710-6-11	425 x 30 x 1.60	10	39/17 69
61736	MN1806-6-11	450 x 30 x 1.60	6	40/18.14
61748	MN1810-6-14	450 x 30 x 1.60	10	40/18.14

Blade tensions

Keep tensioning bolt and nut lubricated for accurate readings.

Chart readings are approximate and should be used as a guide in establishing a reference point. Factors such as stud condition, lubrication, general condition of the machine and frame strength affect attainment of the optimum tensioning point.

After making several cuts, always recheck blade tension.

Nicholson $^{\circledR}$ high speed welded edge shatterproof (foot pounds). Use torque wrench for accuracy.

Width x Gauge "/mm x "	Hacksaw Machine	TN and MN	FN	WE
	Marvel	12	13	15
1"/25.40 x .050	Racine	10	11	13
"/mm x "	Peerless	3	3	4
	Marvel	15	17	20
14"/31.75 x .062	Racine	15	16	18
14 701.70 x .002	Peerless	4	5	6
	Marvel	21	23	28
1¥"/38.10 x .075	Racine	22	24	28
1½"/38.10 x .075	Peerless	7	8	10
	Marvel	24	28	30
1¾"/44.45 x .088	Racine	25	26	29
4 /	Peerless	12	13	15
	Marvel	32	34	38
2"/50.8 x .100	Racine	32	33	36
_ ,	Peerless	13	14	16

To convert foot pounds to inch pounds: multiply by 12.

Nicholson Industrial Hammers

Soft faced hammers

Industrial hammers – holders only (including handle)

Military Description GGG-H-33A (Navy Ships) Non-sparking.



		5	Size	Holder	Handle		
Cat. &	Holder	Dia.	Length	Weight	Length		Shelf
N/S No.	Number	"/mm	"/mm	oz/g	"/mm	lb/kg	Pack
85001	100	1/25	2/51	5/142	11월/289	2/0.91	6
85008	105**	1/25	2/51	8/227	$11\frac{3}{8}/289$	3/1.36	6
85015	150	$1\frac{1}{2}/38$	23/60	10/283	13/330	33/	6
85022	155**	1½/38	23/60	16/454	13/330	6/2.72	6
85029	200	2/51	2½/63	16/484	13/330	6/2.72	6
85036	205**	2/51	2½/63	28/794	13/330	10½/4.78	6
85043	250	2½/63	31/83	28/794	15/381	6 3 /	6
85050	255**	2½/63	31/83	54/1531	13/330	13½/6.10	6
85057	300	3/76	33/95	36/1021	14/356	11½/5.20	6
85064	305**	3/76	33/95	88/2495	14/356	22/9.98	6

^{* *} Zinc allo

Note: See page 87 for replacement handle information.

Deadblo – holders only (including handle)



		5	Size	Holder	Handle		
Cat. &	Holder	Dia.	Length	Weight	Length		Shelf
N/S No.	Number	"/mm	"/mm	oz/g	"/mm	lb/kg	Pack
85071	152	1½/38	$3\frac{1}{2}/63$	15/425	13/330	$5\frac{1}{2}/2.48$	6
85078	202	2/51	48/117	32/907	13/330	12/5.44	6
85085	304	3/76	5/127	60/1701	141/362	4/1.81	1

Note: Ordering information for holders only

Example: To order a holder, determine size and weight required and specify catalog number. Order faces separately.

Replaceable screw-in faces





Cat. & N/S No.	Dia.	Weight Each oz/g	Color	Hardness
85091	1/25	.55/16	Brown	Soft
85098	1/25	.55/16	Red	Medium
85105	1/25	.55/16	Green	Tough
85112	1/25	.45/13	Cream	Med. Hard (Nylon)
85119	1/25	.50/14	Black	Hard
85126	1/25	.50/14	Yellow	Ex. Hard
85133	1½/38	1.6/45	Brown	Soft
85140	1 1 /38	1.6/45	Red	Medium
85147	1½/38	1.6/45	Green	Tough
85154	1½/38	1.4/40	Cream	Med. Hard (Nylon)
85161	1½/38	1.45/40	Black	Hard
85168	1½/38	1.45/40	Yellow	Ex. Hard
85175	2/51	3.4/96	Brown	Soft
85182	2/51	3.4/96	Red	Medium
85189	2/51	3.4/96	Green	Tough
85196	2/51	2.9/82	Cream	Med. Hard (Nylon)

Cat. & N/S No.	Dia. "/mm	Weight Each oz/g	Color	Hardness
85203	2/51	3.0/85	Black	Hard
85210	2/51	3.0/85	Yellow	Ex. Hard
85217	2½/63	6.4/182	Brown	Soft
85224	2½/63	6.4/182	Red ,	Medium
85231	2½/63	6.4/182	Green	Tough
85238	2½/63	5.3/150	Cream	Med. Hard (Nylon)
85245	2½/63	5.4/153	Black	Hard
85252	2½/63	5.4/153	Yellow	Ex. Hard
85259	3/76	10.2/289	Brown	Soft
85266	3/76	10.2/289	Red	Medium
85273	3/76	10.2/289	Green	Tough
85280	3/76	8.4/238	Cream	Med. Hard (Nylon)
85287	3/76	9.2/261	Black	Hard
85294	3/76	9.2/261	Yellow	Ex. Hard

Note: Faces packed two per box. Color denotes hardness. Ordering information. Example: To order a 1½"/38mm dia. medium face red, specify catalog no. 85140

Nicholson® Hickory Handles

Note: Following is information necessary when ordering replacement handles for Nicholson soft face hammers. Please order by catalog no.



For	Handle	Cat. /N/S	For	Handle	Cat./N/S
Hammer No.	No.	No./No.	Hammer No.	No.	No. /No.
100	100-H	85301	305	300-H	85331
105	100-H	85301	50	50-H	85343
150-	150-H	85307	51	51-H	85350
155	150-H	85307	52	52-H	85357
200	200-H	85313	HS	HS-H	85364
205	200-H	85313	BS	150-H	.85307
250	250-H	85319	CS	200-H	85313
255	255-H	85325	TS	TS-H	85370
300	300-H	85331	TSS	TS-H	85370

Dancraft hammers with nylon faces



		S	ize	Handle		
Cat./N/S No./No.	Hammer No.	Dia. "/mm	Length "/mm	Length "/mm	Weight oz/g	Shelf Pack
85376	50	11/32	33/95	10½/267	13/368	1
85385	51	1½/38	41/114	1½/292	22/624	1
85394	52	13/44	5½/140	12½/318	35/992	1

Danco hammers - steel heads with nylon faces (not non-sparking)



				Handle		
0 1000			ize		\A/-:-b-	
Cat. /N/S	Hammer	Dia.	Length	Length	Weight	
No. /No.	No.	"/mm	"/mm	"/mm	oz/g	
85403	HS	11/32	33/95	11½/267	18/510	
85409	BS	1½/38	41/114	12/305	26/737	
85415	CS	13/44	5½/140	131/337	44/1247	
85421	TSS	21/57	4½/114	143/374	52/1474	
85427	TS	21/57	6/152	143/374	78/2211	

Note: Each of the above hammers is furnished complete with two nylon forced-infaces. Extra faces may be ordered. Determine diameter required and order by catalog no.

Extra nylon faces for Dancraft and Danco hammers

Cat. /N/S No. /No.	Item	Size "/mm	Weight lb/g	Shelf Pack
85433	Dancraft Nylon Face	11/32	.45/204	1
85442	Dancraft Nylon Face	1½/38	.8/363	1
85451	Dancraft Nylon Face	13/44	1.2/544	1
85460	Dancraft Nylon Face	21/57	1.9/862	1

Brass rings for Danco hammers

Cat. /N/S No. /No.		Size
No./No.	ltem	"/mm
85467	Brass Rings	11/32
85474	Brass Rings	1 1 /38
85481	Brass Rings	1 3 /44
85488	Brass Rings	21/57

TW-24 (80950) **Hacksaw Module**



Size: 16"/400mm x 16"/400mm (B) Shipping weight: 17 lb/7.71 kg Contains: Three (3) Each 80952, 80958, TW-24A (80951) refill assortment only.

TW-25 (63252) **Hacksaw Blade** Module



Size: 16"/400mm x 16"/400mm (B) Shipping weight: 11 lb/4.98 kg Contains: Ten (10) Each 62801, 62807, Fifteen (15) Each 63256, 63268 Twenty (20) Each 62825, 62831 TW-25A (63253) refill assortment only.

TW-28 (81020) **Sabre Saw Blade** Module



Size: 16"/400mm x 16"/400mm (B) Shipping weight: 5 lb/2.26 kg Contains: Three (3) Each 81085, 81091, 81094 Six (6) Each 81036, 81043, 81050, 81057, 81064, 81071, 81078

TW-28A (81021) refill assortment only.

TW-26 (80062) **Handsaw Module**



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 26 lb/11.79 kg Contains: One (1) Each 80028, 80086, Two (2) Each 80019, 80080, 80104, 80131 TW-26A (80063) refill assortment only.

TW-29 (81089) **Special Saw Module**



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 15 lb/6.80 kg Contains: Three (3) Each 80167, 80215, 80251, 80170, 80968 TW-29A (81090) refill assortment only.

TW-27 (80064) **Handsaw Module**



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 29 lb/13.15 kg Contains: One (1) Each 80028, 80086, Two (2) Each 80019, 80080, 80104, 80131

TW-30 (81092) Special Saw Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 13 lb/5.89 kg Contains: Three (3) Each 80167, 80188, 80239, 80170, 80968 TW-30A (81093) refill assortment only.

TW-31 (80520) **Circular Saw Module**



Size: 16"/400mm x 13"/330mm (C) Shipping weight: 18 lb/8.16 kg Contains: Five (5) Each 80538, 80669, 80738, 80479 TW-31A (80521) refill assortment only.

TW-32 (80525) **Circular Saw Module**



Size: 16"/400mm x 13"/330mm (C) Shipping weight: 22 lb/9.98 kg Contains: Five (5) Each 80557, 80687, 80758, 80497

TW-32A (80526) refill assortment only.

TW-34 (80543) **Circular Saw Module** (Carbide)



Size: 16"/400mm x 13"/330mm (C) Shipping weight: 15 lb/6.80 kg Contains: One (1) Each 80912, 80914 Two (2) Each 80894, 80904, 80908 TW-34A (80544) refill assortment only.

TW-33 (80535) Circular Saw Module



Size: 16"/400mm x 13"/330mm (C) Shipping weight: 19 lb/8.61 kg Contains: Three (3) Each 80566, 80696, 80768, 80506

TW-33A (80536) refill assortment only.

TW-35 (63193) **Hacksaw Blade** Module



Size: 16"/400mm x 16"/400mm (B) Shipping weight: 9 lb/4.08 kg Contains: Thirty (30) Each 62723 Twenty (20) Each 62749, 63145, 63158 Ten (10) Each 62776, 62635, 62659 TW-35A (63195) refill assortment only.

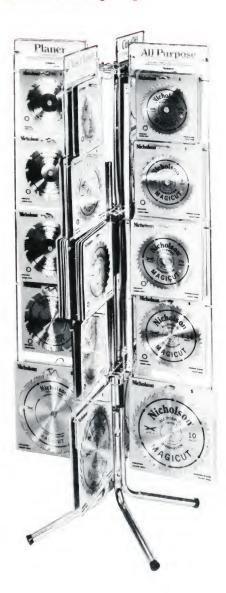
TW-101 (81010) Saw Module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 13 lb/5.89 kg Contains: Two (2) Each 80968, 80167, 80958 Ten (10) Each 62837, 62831, 62825

TW-101A (81011) refill assortment only.

C-76-R (81130) Circular Saw Blade Display



Size: 26"/661mm x 57"/1449mm
Shipping Weight: 94 lbs/42.63 kg
Contains: One (1) Each 80566, 80583, 80696, 80714, 80768, 80778, 80636, 80646, 80446, 80456, 80506, 80515, 80894, 80901, 80908, 80816, 80826
Two (2) Each 80538, 80547, 80669, 80678, 80738, 80748, 80607, 80616, 80415, 80425, 80479, 80488, 80904, 80786, 80796
Three (3) Each 80497, 80806
Four (4) Each 80626, 80436
Five (5) Each 80557, 80687, 80758.
C-76-RA Refill Assortment only (Catalog No. 81131).

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50831 50837	NR45 NR45	52057 52063	NR50 NR50	80263 80269	NS58 NS58	80904	NS68, NS89 NS90	62144	NHB84	66379 66401	NHB79 NHB79	67119 67121	NHB80 NHB80
50843	NR45 NR45	52069 52105	NR50 NR51	80275 80299	NS58 NS59	80908	NS68, NS89. NS90	62157 62170	NHB84 NHB84	66402 66409	NHB79 NHB79	67129 67131	NHB80
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50897 50903	NR46 NR46	52441 52453	NR51 NR51	80356 80386	NS60 NS60	80922 80924	NS69 NS70	62257 62266	NHB84 NHB84	66479 66491	NHB79 NHB79	67201 67209	NHB80
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0975	NR47	52579 52591	NR49 NR49	80436 80446	NS65, NS90 NS65, NS69,	80951 80952	NS88 NS59, NS88	62435 62448	NHB84 NHB84	66519 66521	NHB79 NHB79	67241 67242 67249	NHB80 NHB80 NHB80
50987 50999	NR47 NR47	52603	NR49		NS90	80958	NS59, NS88	62496 62509	NHB84 NHB84	66522 66529	NHB79 NHB79	67251	NHB80
1011	NR47 NR47	52615 52627	NR49 NR50	80453 80456	NS65, NS69 NS65, NS69,	80964 80968	NS59, NS88 NS60, NS88	62549	NHB84	66531	NHB79	67252 67259	NHB80
1029	NR38 NR38	52639 52651	NR50 NR50	80463	NS90 NS65	81010 81011	NS89 NS89	62571 62967	NHB84 NHB61	66532 66539	NHB79 NHB79	67291 67292	NHB86
1035	NR38	52663 52687	NR50 NR50	80470 80479	NS65, NS69, NS65, NS89,	81020 81021	NS88 NS88	62982 62997	NHB61 NHB61	66541 66542	NHB79 NHB79	67299 67301	NHB80
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1041	NR39 NR39	52711 52723 52735	NR51 NR51	80488	NS65, NS69, NS90	81043 81050	NS62, NS88	63042	NHB61	66552	NHB79	67309 67341 67342	NHB80 NHB80 NHB80
1047	NR40 NR41	52747	NR51 NR50	80497	NSS5, NSS9, NSS0	81057 81064	NS62, NS88 NS62, NS88	63050 63103	NHB61 NHB62	66559 66561	NHB79 NHB79	67342 67349	NHB8
1051	NR41	52771 52831	NR51 NR51	80506	NS65, NS69, NS89, NS90	81071 81078	NS62, NS88 NS62, NS88	63112 63124	NHB62 NHB62	66562 66569	NHB79 NHB79	67351 67352	NHB8
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67702 67709 67712	NHB80 NHB80 NHB80, NHB81	68299 68301	NHB80 NHB80	69149 69151	NHB77 NHB77	70659 70661	NHB77 NHB77	85119 85126 B5133	NHB86 NHB86 NHB86		
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67932 67939 67941	NHB80 NHB80 NHB80	68592 68599	NHB80 NHB80	69819 69821 69829	NHB78 NHB78 NHB78	81167 81170	NHB71 NHB71	TW21(218 TW22(218 TW23(016	50) N34 55) N34 55) N34		
67942 67949 67961	NHB80 NHB80 NHB80	68601 68602 68609	NHB80 NHB80 NHB80	69831 69839 69841	NHB78 NHB78 NHB78	81173 81176 81179		TW24 (809) TW25 (632)	50) NS88 52) NS88		
67962 67969	NHB80 NHB80	68611 68612	NHB80 NHB80 NHB80	69849 69851	NHB78 NHB78	81182 81188 81191	NHB71	TW26 (800) TW27 (800) TW28 (810)	64) NS88		
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68002 68009	NHB80, NHB81 NHB80, NHB81	6B669 68671 68672	NHB80 NHB80 NHB80	69889 69891	NHB78 NHB78	81215 81218 81224	NHB71 NHB71	TW34(805 TW35(631 TW101(81	43) NS89 93) NS89		
68041 68042 68049	NHBB1	68679 68681	NHB80 NHB80	69899 69901 69909	NHB78 NHB78 NHB78	81227 81230	NHB71 NHB71	TW102(21 TW206(21 C-76-R(81)	844) NS34 865) NS34		
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CooperTools

Plumb

The Plumb brand name has been famous among craftsmen since 1856 and was acquired by The Cooper Group in 1980.

The extensive offering of beautifully balanced striking tools includes standard and specialty hammers, sledges, wedges, axes and hatchets.

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Special features available on Plumb products

L – Long handleX – Checkered face

R - Ripping claw

Handle repair codes

A - Adze eye

O - Oval eye

H - Hatchet eye

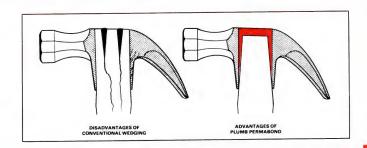
Quality Striking Tools

Since 1856 the quality of Plumb tools has been recognized and preferred by tool users throughout the world.

The special analysis steel used to make Plumb tools is forged to close tolerances and "double heat treated" to build in the toughness necessary to withstand impact. Extra care is then taken in hardening and tempering to make each part of the tool ready for the specific job it has to do. You can be sure Plumb tools have the toughness, durability and keenness to do the job. Plumb tools are engineered for balance and exacting care is taken to assure the head is "hung" on the handle at the right angle. This built-in balance gives Plumb tools extra driving power. They swing easy—hit hard.

Advantages of Permabond®

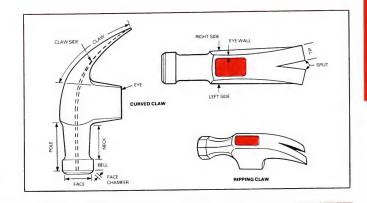
Permabond is a red-colored chemical weld used in Plumb tool eyes to join heads and handles together. Patented bonding process replaces conventional wedging which splits wood, allowing moisture to swell and shrink the handle and eventually loosen the head. Permabond seals moisture out, forms a bond so tight it takes about 2 tons of pressure to pull them apart. Permabond is used on all Plumb striking tools and is a visible plus with homeowners and tradesmen alike.



Nail Hammers

- Face radius and chamfer are designed to provide a hard striking face.
- Mid-section is resilient yet extra strong.
- Claws are tough, sturdy; edges are beveled, with uniform taper and bite.

Nail hammers are made in two patterns; curved claw and straight or ripping claw. The face is slightly crowned with the edges beveled, although certain heavy-duty patterns may have checkered faces designed to reduce glancing blows and flying nails. Handles may be wood, tubular steel, or fiberglass. Tubular steel and fiberglass are generally furnished with rubber-type grips. *Try the Plumb test for balance: these finely tuned hammers will actually rock on their claws.



Safety tips

Hand tools are made in various types and sizes, degrees of hardness and different configurations for specific purposes. They should be carefully selected and used only for their intended purpose. Proper use of most types involves certain basic rules:

- Protect your eyes always wear safety goggles.
- Strike squarely avoid glancing blows.
- Always use a tool of suitable size and weight for the job.
- The striking face of a hammer should be approximately \(\frac{3}{8}\)"
 larger in diameter than the struck face of a chisel, punch, etc.
- Replace immediately upon chipping or mushrooming.
- Never use a tool with a loose or damaged handle.
- Never use a grinding wheel for redressing a cutting edge or a struck face — use a file or whetstone — redress to original shape and contour.

- Never use a hammer or maul or axe to strike another hammer or maul or axe.
- Never redress a striking face.
- Never use a tool with a dull cutting edge.



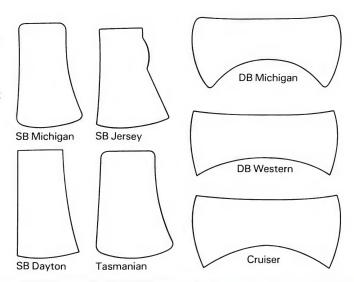
WARNING • BE SAFE • PROTECT EYES

Nail Hammers and Hatchets are for driving and pulling common nails. Ball Pein Hammers are intended to drive against the softer head of a chisel and for general machinists' use. Any face can be made to chip if struck against another striking tool or hard surface. This will damage the tool, possibly resulting in eye or other injury. Replace immediately if chipping or mushrooming occurs.

Axes and Hatchets

There's a wide variety of Plumb axes and hatchets to suit personal preferences and usage.

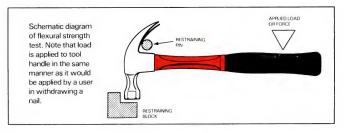
The big axe heads come in a choice of the six patterns illustrated. The finish is either a fully polished head and bit, or a painted rust-resistant head with a polished bit. Needless to say, only the highest quality, hardened and tempered forged steel is used throughout. Smaller axe heads and hatchets reflect the many uses to which this handy and versatile tool can be put. Here's a specialist field where the customer knows what he wants . . . and he knows he can get it from Plumb.



Handles

For many good reasons, the traditional choice of material for a striking tool handle is North American red hickory. It looks good and it naturally feels good. And the continuous fibers of this fine stock give great resilience and strength while minimizing impact shock. But man made materials have their advantages too. In 1955 Plumb developed and introduced the fiberglass handle. It can't rust, rot or corrode and despite its light weight it has astonishing strength. Tests on a Tinius-Olsen testing machine have shown that with more than 450 lbs of applied load, a Plumb fiberglass handle won't break.

The latest material, used in the new Ultralite line of hammers, is nickel-chrome plated tubular steel. And after extensive research and trials, Plumb has arrived at a design which is both aesthetically pleasing and functionally correct. With its smart resilient cushion grip, as fitted to fiberglass handles, this new line has the look of a winner.





Plumb® Hammers



Ultralite™ Hammers

Premium



Strong tubular steel handle in classic handle shape (not round). Polished head, bell and striking face. Permabond® handle to head construction. Resilient grip for cushioned comfort. Heat treated nickel-chrome plated handle for long life. Engineered for balance.

Cat. No.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cla	aw					
11-469*	UL20	20/567	13½/343	7.2/3.27	4	Octagon
11-470*	UL16	16/454	13/330	6.0/2.72	4	Octagon
11-471*	UL13	13/369	12½/318	5.2/2.36	4	Octagon
Ripping c	law					
11-472*	UL22R	22/624	13½/343	7.6/3.45	4	Bell
11-473*	UL16R	16/454	13/330	6.0/2.72	4	Bell

*Available in master carton of 24



Same as premium except black head painted with durable baked enamel finish.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face	
Curved cl	aw						
11-474*	LL16	16/454	13/330	9.0/4.08	6	Bell	
Ripping c	law						
11-475*	LL16R	16/454	13/330	9.0/4.08	6	Bell	

* Available in master carton of 24

11-475

Fiberglass Hammers

Premium



Full polished finish on head, pole and striking face. Octagon shaped neck and bell. 100% factory balanced. Sturdy fiberglass handle with black cushion grip, and Permabond® handle attachment.

Cat. No.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-400*	FA571	20/567	13½/343	8.0/3.63	4	Octagon
11-402*	FA57	16/454	13/330	6.8/3.08	4	Octagon
11-403*	FA572	13/369	12½/318	6.0/2.72	4	Octagon
Ripping c	law					
11-414*	FA571R	22/624	13½/343	8.8/3.99	4	Bell
11-415*	FA57R	16/454	13/330	7.2/3.27	4	Bell
11-416*	FA571RL	22/624	15/377	9.2/4.17	4	Bell
11-417*	FAX571RL	22/624	15/377	9.2/4.17	4	Checkered
	in montor on		10/011	0.2/ 1.17		0110011011

^{*} Available in master carton of 24

Regular



Polished head, bell and striking face. Round neck and bell. Black molded cushion grip on super strength fiberglass handles. Permabond® handle attachment.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-405*	FA20	20/567	13½/343	7.6/3.45	4	Bell
11-406*	FA16	16/454	13/330	6.4/2.90	4	Bell
11-407*	FA13	13/369	12½/318	5.6/2.54	4	Bell
Ripping c	law					
11-418*	FA20R	20/567	13½/343	7.6/3.45	4	Bell
11-419*	FA16R	16/454	13/330	7.2/3.27	4	Bell

^{*} Available in master carton of 24

Economy



Black head painted with durable baked enamel finish. Polished bell and striking face. Hard biting claws and durable fiberglass handle with comfortable cushion grip. Patented Permabond® handle attachment.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-654*	FG16	16/454	13/330	9.6/4.36	6	Polished Bell
Ripping c	law					
11-504*	FG16R	16/454	13/330	9.6/4.36	6	Polished Bell

^{*} Available in master carton of 24

Plumb® Hammers



Ultralite™ Hammers

Premium



Strong tubular steel handle in classic handle shape (not round). Polished head, bell and striking face. Permabond® handle to head construction. Resilient grip for cushioned comfort. Heat treated nickel-chrome plated handle for long life. Engineered for balance.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-469*	UL20	20/567	13½/343	7.2/3.27	4	Octagon
11-470*	UL16	16/454	13/330	6.0/2.72	4	Octagon
11-471*	UL13	13/369	12½/318	5.2/2.36	4	Octagon
Ripping c	law					
11-472*	UL22R	22/624	13½/343	7.6/3.45	4	Bell
11-473*	UL16R	16/454	13/330	6.0/2.72	4	Bell

* Available in master carton of 24



Same as premium except black head painted with durable baked enamel finish.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					•
11-474*	LL16	16/454	13/330	9.0/4.08	6	Bell
Ripping c	law					
11-475*	LL16R	16/454	13/330	9.0/4.08	6	Bell

* Available in master carton of 24

11-475

Fiberglass Hammers



Full polished finish on head, pole and striking face. Octagon shaped neck and bell. 100% factory balanced. Sturdy fiberglass handle with black cushion grip, and Permabond® handle attachment.

Cat. No.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-400*	FA571	20/567	13½/343	8.0/3.63	4	Octagon
11-402*	FA57	16/454	13/330	6.8/3.08	4	Octagon
11-403*	FA572	13/369	12½/318	6.0/2.72	4	Octagon
Ripping c	law					
11-414*	FA571R	22/624	13½/343	8.8/3.99	4	Bell
11-415*	FA57R	16/454	13/330	7.2/3.27	4	Bell
11-416*	FA571RL	22/624	15/377	9.2/4.17	4	Bell
11-417*	FAX571RL	22/624	15/377	9.2/4.17	4	Checkered
* A ! - I - I - I -						

^{*} Available in master carton of 24

Regular



Polished head, bell and striking face. Round neck and bell. Black molded cushion grip on super strength fiberglass handles. Permabond® handle attachment.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
		02/9	/111111	ID/ K	Tack	1 000
Curved cl	aw					
11-405*	FA20	20/567	$13\frac{1}{2}/343$	7.6/3.45	4	Bell
11-406*	FA16	16/454	13/330	6.4/2.90	4	Bell
11-407*	FA13	13/369	$12\frac{1}{2}/318$	5.6/2.54	4	Bell
Ripping c	law					
11-418*	FA20R	20/567	13½/343	7.6/3.45	4	Bell
11-419*	FA16R	16/454	13/330	7.2/3.27	4	Bell
* Available	in master c	arton of 24				

Available in master carton of 24

Economy



Black head painted with durable baked enamel finish. Polished bell and striking face. Hard biting claws and durable fiberglass handle with comfortable cushion grip. Patented Permabond® handle attachment.

Cat.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face
Curved cl	aw					
11-654*	FG16	16/454	13/330	9.6/4.36	6	Polished Bell
Ripping c	law					
11-504*	FG16R	16/454	13/330	9.6/4.36	6	Polished Bell

^{*}Available in master carton of 24

Hickory handled hammers

Autograf Hammers – Premium



Full polished head, pole and striking face. Octagon shaped pole. Quality red full Octagon hickory handle. Factory balanced. Permabond® construction forms a tight bond between head and handle.

Cat. No.	Sales No.	wt. oz/g	length "/mm	Pack wt. lb/k	Shelf Pack	Face	Repair Handle No.
Curved c	law						
11-435*	OAN11	20/567	$13\frac{1}{2}/343$	10.8/4.90	6	Octagon	11-688(A
11-436*	OAN11½	16/454	13/330	9.0/4.08	6	Octagon	11-689(A
11-437	OAN11½L	16/454	15½/394	9.6/4.35	6	Octagon	11-690(A
11-438*	OAN12	13/369	12½/318	8.4/3.81	6	Octagon	11-691(A
Ripping	claw						
11-439	CR11	22/624	13½/343	10.8/4.90	6	Bell	11-688(A
11-440*	CR11½	16/454	13/330	9.0/4.08	6	Bell	11-689(A
11-441	CR11L	22/624	16/457	7.2/3.27	4	Bell	11-764(A
11-893	CR28	28/794	17 1 /495	11.2/5.08	4	Bell	11-719(A
11-442*	CR11XL	22/624	16/457	7.2/3.27	4	Checkered	11-764(A
11-894	CR28X	28/794	171/495	11.2/5.08	4	Checkered	11-719(A

Leader Hammers - Regular



Polished head, bell and striking face. Round pole. Red hickory handles. Factory balanced. Patented Permabond® process assures tight head to handle attachment.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face	Repair Handle No.
Curved o	law						
11-453	L80	20/567	13½/343	10.8/4.90	6	Bell	11-693(A)
11-454*	L81	16/454	13/330	7.8/3.54	6	Bell	11-694(A)
11-455	L82	13/369	12½/318	7.8/3.54	6	Bell	
Ripping	claw						
11-458	L85	20/567	13½/343	10.8/4.90	6	Bell	11-693(A)
11-459	L86	16/454	13/330	9.0/4.08	6	Bell	11-694(A)
11-847	LX85	20/567	13½/343	10.8/4.90	6	Checkered	11-693(A)

^{*} Available in master carton of 24

Homethrift Hammers – Economy



Black head painted with tough baked enamel finish. Polished bell and striking face. Hickory handle. Permabond* head to handle attachment.

Cat. No.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Face	Repair Handle No.
Curved c	law						
11-460*	145	16/454	13/330	9.0/4.08	6	Polished Bell	11-694(A)
Ripping (claw						
11-463	155	16/454	13/330	9.0/4.08	6	Polished Bell	11-694(A)

^{*}Available in master carton of 24

Servall Hammers – Economy



Entire head of hammer painted black. Hickory handle. Permabond®.

 Cat.	Sales	Head wt.	Overall length	Shelf Pack wt.	Shelf		Repair
No. No.	oz/g	"/mm	lb/k	Pack	Face	Handle No.	
Curved o	law						
11-465*	SN13	7/198	11½/292	4.8/2.18	6	Bell	11-696
11-775	SN12	13/369	12½/318	7.8/3.54	6	Bell	_
11-464*	SN11½	16/454	13/330	9.0/4.08	6	Bell	11-694(A)
11-776	SN20	20-567	13½/343	9.0/4.08	6	Bell	11-693(A)
Ripping	claw						
11-466*	SR11½	16/454	13/330	9.0/4.08	6	Bell	11-694(A)

^{*} Available in master carton of 24.

Ball Pein Hammers

Fiberglass



Rust resistant black forged head with polished poles and peins. Smooth cheeks. Professional fiberglass handle attached to head in tight bonding Permabond® process. Comfortable black cushion grip.

Cat.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-426	FAM16	16/454	123/324	6.4/2.90	4
11-427	FAM20	20/567	13/330	7.2/3.27	4
11-428	FAM24	24/681	15/377	10/4.54	4
11-429	FAM32	32/908	15/377	11.2/5.08	4
11-430	FAM40	40/1135	15/377	13.2/5.99	4

Hickory handle



Black ground head. Polished peins and smooth ground cheeks. Select quality hickory handle. Strong Permabond® handle to head attachment.

Cat.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-494	0369	4/113	10½/267	2.4/1.09	6	
11-495	0370	6/170	10½/267	3.6/1.63	6	
11-496	* 0371	8/227	111/286	4.8/2.18	6	11-696(A) or 11-721(0)
11-497	* 0372	12/340	111/286	6.0/2.72	6	11-696(A) or 11-721(0)
11-498	* 0373	16/454	123/324	7.8/3.54	6	11-694(A) or 11-722(0)
11-499	0374	20/567	123/324	10.2/4.63	6	11-694(A) or 11-722(0)
11-520	0375	24/681	15/377	12.0/5.44	6	11-811(A) or 11-723(0)
11-521	0377	32/908	15/377	15.0/6.80	6	11-811(A) or 11-723(0)
11-522	0379	40/1135	15/377	18.0/8.16	6	11-811(A) or 11-723(0)
_						

^{*}Available in master carton of 24

Tradesmen's Hammers

Fiberglass Brick Hammers



Forged head. Polished face, chamfer, bit and back. Fiberglass handle with comfortable cushion grip. Permabond®.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-421	FAB24	24/681	13/330	9.2/4.17	4	
11-422	FAB15	15/425	121/311	6.0/2.72	4	_

Hickory Handled Brick Hammers



Forged head. Durable black enamel finish. Sharp chisel and strong hickory handle. Permabond®.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-491*	2580	24/681	11/279	10.8/4.90	6	11-694(A)
11-492*	2581	15/425	11/279	8.4/3.81	6	_

^{*} Available in master carton of 24.

Tinner's Hammer



Rust resistant black enamel-finish. Riveting pattern. Lightweight cross pein forged head. Quality hickory handle. Permabond®. Used in sheet metal fabrication.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-489	221	12/340	13/330	6.0/2.72	6	11-722(0)

Scaling Hammer



Forged head with durable black enamel finish. Plumb® red hickory handle. Permabond®. Popular welder's tool. Also chips rust and paint.

Cat. No.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-530	3095	16/454	13/330	7.8/3.54	6	11-694(A)

Fiberglass Handled Prospecting Pick



Forged head. Polished face, chamfer and back. Long lasting red fiberglass handle with cushion grip for real comfort. Patented Permabond® handle attachment. Known as the "Rock Hound" hammer.

Cat.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-423	FA470	16/454	121/318	7.2/3.27	4	-

Hickory Handled Prospecting Pick



Polished face and chamfer highlighted in black enamel finish. Precision forged head. Tough hickory handle. Permabond[®]. Used by prospectors and geologists.

Cat.	Sales No.	Head wt. oz/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-493	470	16/454	12½/318	7.8/3.54	6	

Heavy Hammers

Double Faced Engineer's Hammers



Forged from high quality steel; hardened and tempered for serviceability. Two driving heads. Rust retardant black enamel finish. Polished face. Handles of red hickory. Permabond[®].

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-527	0272	40/1135	14/356	19.2/8.71	6	11-699(0) or 11-811(A)
11-528	0273	48/1362	14/356	21.6/9.80	6	11-699(0) or 11-811(A)
11-529	0274	64/1814	153/396	28.2/12.79	6	_

Blacksmith Hand Hammers



Quality steel forgings. Hardened and tempered. Proper weight distribution concentrated behind striking face for added power. Durable black enamel finish. Hickory handle. Permabond®.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-523	0281	32/908	14/356	14.4/6.53	6	11-699(0) or 11-811(A)
11-524	0282	40/1135	14/356	19.2/8.71	6	11-699(0) or 11-811(A)
11-525	0283	48/1362	14/356	19.0/8.98	6	11-699(0) or 11-811(A)

Hand Drilling Hammer



Black forged head. Red hickory handle. Permabond[®]. Known as stone cutters hammer. Recommended for striking cold chisels, brick chisels, punches and star drills.

Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-649	E3H	48/1362	103/273	19.2/8.71	6	

Bars

Wrecking Bars



Forged high carbon steel. Rust resistant blue finish. Hardened and tempered claw and chisel. Five popular sizes from $12^{\prime\prime}$ to $36.^{\prime\prime}$

Cat.	Sales No.	Bar size "/mm	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-870	WB12	₹Hex/12.70	12/305	8.4/3.81	12
11-871	WB18	§Hex/15.87	18/457	11.4/5.17	6
11-872	WB24	∄Hex/19.05	24/610	21.0/9.53	6
11-873	WB30	∄Hex/19.05	30/762	25.2/11.43	6
11-874	WB36	∄Hex/19.05	36/914	29.4/13.34	6

Ripping Bar



Forged high carbon steel. Blue enamel finish to resist rust. Three beveled nail slots. 90° offset curved claw.

Cat.	Sales No.	Bar size "/mm	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-888	RB1	11 hex/17.46	17/432	8.0/3.63	4

Action Bar



Forged carbon steel. Beveled nail slots at both ends. Attractive blue finish. Used to pry, lift, pull, scrape and shape.

Cat. No.	Sales No.	Bar size "/mm x "/mm	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-889	PB1	13/35 x 1/6	13½/343	6.0/2.72	4

Nail Claw



Forged high carbon steel; hex stock. Beveled nail slot. Blue painted finish resists rust. Designed to extract deeply embedded nails.

Cat.	Sales No.	Bar size "/mm	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-887	NC1	9 hex/14.27	10/260	6.0/2.72	6

Double faced Sledges



Black forged head. Permabond $^{\circ}$ handle attachment takes two tons of pressure to pull loose. Red hickory handle. Rectangular eye on 4 lb. Oval eye on 6-20 lbs.

Cat. No.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-658	H4HL	4/1814	30/762	30/13.60	6
11-659	Н6Н	6/2722	34/864	28/12.70	4
11-660	Н8Н	8/3629	34/864	36/16.33	4
11-661	H10H	10/4536	34/864	44/19.96	4
11-662	H12H	12/5443	341/870	52/23.58	4
11-663	H16H	16/7257	341/876	34/15.42	2
11-664	H20H	20/9072	35½/902	42/19.05	2

Wood Chopper's Maul



Black forged head. Oval eye. Red hickory handle. Permabond®.



Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-670	М6Н	6/2722	333/858	28/12.70	4

Wedges



Red forged square head pattern. Forged quality steel. Available in two sizes.

Sales No.	Head wt.	Shelf Pack wt. Ib/k	Shelf Pack
V4	4/1814	24/10.89	6
V5	5/2268	30/13.60	6
	No. V4	No. lb/g V4 4/1814	Sales Head wt. Pack wt. No. lb/g lb/k V4 4/1814 24/10.89

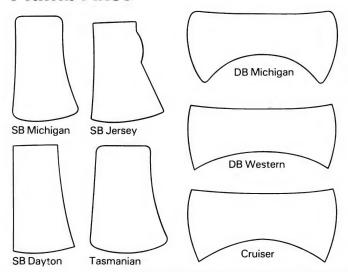
Adze



Forged from high quality steel. Hardened and tempered to have a sharp cutting edge and sturdy driving head. Rust resistant black finish. No. 11-784 handle must be ordered separately.

No.	Cat. Sales	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-564	740	64/1814	_	16/7.25	4
11-784	K740	23/652	33/838	3/1.36	2

Plumb Axes



There's a wide variety of Plumb axes and hatchets to suit personal preferences and usage.

The big axe heads come in a choice of the six patterns illustrated. The finish is either a fully polished head and bit, or a painted rust-resistant head with a polished bit. Needless to say, only the highest quality, hardened and tempered forged steel is used throughout.

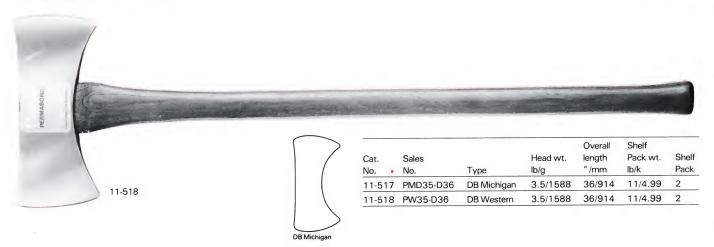
Premium Axes

Fully polished high quality forged steel heads. Hardened and tempered bits hold sharp edge longer. A fast cutting axe woodcutters have learned to appreciate. Select growth hickory handles. Permabond*.

Curved Handle



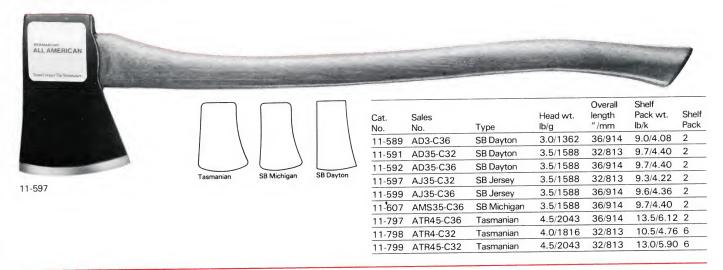
Straight Handle



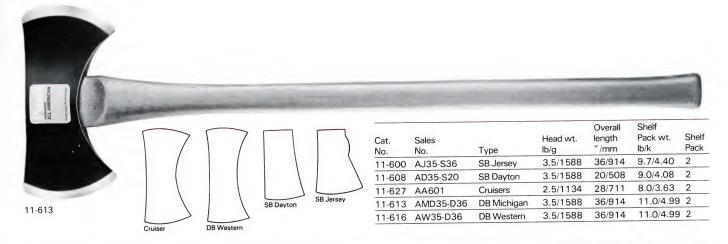
All American - Dreadnaught

Polished bit. Forged steel heads. Rust resistant black enamel finish on head. Tempered and hardened bits retain their sharp cutting edge. Red hickory handles. Permabond[®].

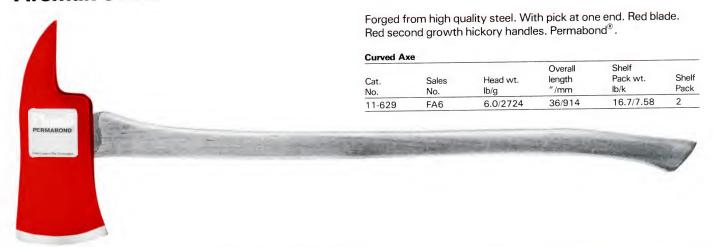
Curved Handle



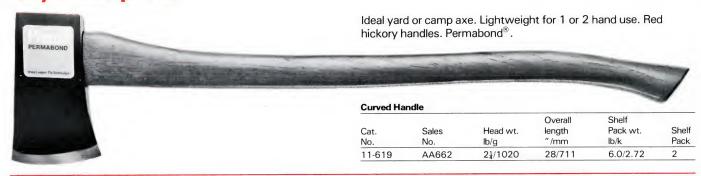
Straight Handle



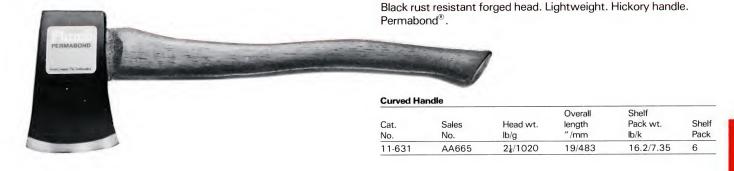
Fireman's Axe



Boy's Camp Axe



House Axe



Hunter's Axe



Great axe for sportsmen or campers. Easy to handle lightweight design. Hickory handle. Permabond[®].

Curved Ha	Curved Handle									
Cat.	Sales No.	Head wt.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack					
11-635	AA672	11/567	12/305	9.0/4.08	6					

Belt Axe



Sharp, fast cutting lightweight axe with belt sheath for sportsmen or campers. Black forged steel head. Red select hickory handle. Permabond®.

Curved Handle

Cat.	Sales No.	Head wt. lb/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack
11-634	682	11/567	12/305	10.8/4.90	6

Hatchets

Half Hatchets Fiberglass Handles



Hardened and tempered bit to hold sharp cutting edge. Strong fiberglass handle with black cushion grip. 11-432 (polished head) 11-433 (black painted head). Permabond®.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-432	FAPH2	33/86	131/337	7.2/3.27	4	11-729(H)
11-433	FAH2	35/92	13½/343	10.0/4.54	4	11-729(H)

Half Hatchets Hickory Handles



Same as fiberglass except for type of handle.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-541	AH2	33/86	13½/343	7.6/3.45	4	11-729(H)
11-548	2961	31/83	13½/337	8/3.63	4	11-729(H)
11-549	2962	3 1/92	131/343	8.4/3.81	4	11-729(H)
11-557	SH2	3 / 92	13½/343	9.2/4.17	4	11-729(H)

Broad Hatchet



Black finish. Heavy hatchet with broad single bevel cutting edge. Red Hickory handle. Permabond $^{\$}$.

Cat.	Sales No.	Bit size. lb/g	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-554	2992	41/114	15½/394	10.0/4.54	4	_

Expert California Lath Hatchet



Polished head with thin blade. Checkered face. Hickory handle. $\mathsf{Permabond}^{\otimes}$.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-544*	3025	21/54	12½/318	6.0/2.72	4	11-734(H)

^{*} Available in master carton of 24.

Expert Wallboard Hatchet



Rust resistant black painted head with polished bevel and flat checkered face. Red hickory handle. Permabond[®].

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-543	3020	21/57	13/330	7.2/3.27	4	11-734(H)

Professional Wallboard Hatchet



Forged steel head. Crowned target style face. Balanced. Hickory handle. Permabond®.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-895	PWB1	21/57	141/362	6.0/2.72	4	_

Expert Box Hatchet



Polished head with thin cutting edge. Checkered face. Long Blade. Red hickory handles. Permabond®.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-546	BOX	21/57	16/402	8.0/3.63	4	11-734(H)

Rigster Hatchet



Black painted head. Checkered face with sharp cutting edge. Hickory handle. Permabond $^{\tiny{\textcircled{\scriptsize 0}}}$.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-559*	RB2	31/89	18/457	10.0/4.54	4	11-732(H)

^{*} Available in master carton of 24.

Car Builders Hatchet



Same as Rigster Hatchet only shorter handle.

Cat. No.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-561	CBX2	3½/89	13½/343	9.2/4.17	4	11-729(H)

Repair handle code: (A) adze eye (O) oval eye (H) hatchet eye.

Expert Shingling Hatchet

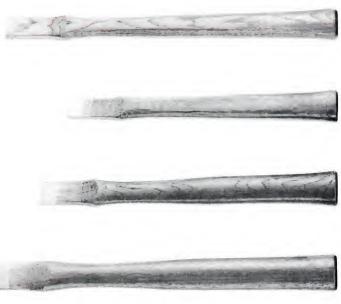


Rust retardant black head finish. Checkered face. Adjustable gauge. Draw Knife inner blade. Leather strap. Hickory handle. Permabond $^{\$}$.

Cat.	Sales No.	Bit Size.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Repair Handle No.
11-558*	565 1	21/54	13/330	8.0/3.63	4	11-734(H)
11-763	HJB	Gauge for	11-558	10.0/4.54	100	

^{*} Available in master carton of 24.

Rehandling Kits



Quality replacement handles complete with hardwood wedges, metal cross wedges and complete easy to follow instructions.

Cat.	Sales No.	Overall length "/mm	Shelf Pack wt. lb/k	Shelf Pack	Type Eye	Replacement for
11-688	KOAN11	13½/343	6/2.72	12	Adze	OAN11, CR11
11-689	KOAN111	13/330	6/2.72	12	Adze	OAN111, CR111
11-690	KOAN11⅓L	15½/394	7.2/3.27	12	Adze	OAN11},L
11-764	KCR11L	16/406	6/2.72	12	Adze	CR11L. CR11XL
11-691	KOAN12	12½/318	6/2.72	12	Adze	OAN12
11-693	K80	131/343	6/2.72	12	Adze	L80, L85, LX85, SN20
11-694	K81	13/330	6/2.72	12	Adze	SR11½, L81, L86, SN11 3095, 145, 155, 0373, 0374, 2580
11-719	KCR28	171/444	7.5/3.40	12	Adze	CR28, CR28X
11-699	K281	111/286	3.6/1.63	12	Adze	0273, 0281, 0282, 0283, 0272
11-696	K83	14/356	6/2.72	12	Oval	0371, 0372, SN13
11-721	K371	111/286	3.6/1.63	12	Oval	0371, 0372
11-722	K373	13/330	3.6/1.63	12	Oval	221, 231, 253, 0373, 0374
11-730	KS 10G	34½/876	9.6/4.35	12	Oval	H6H, H8H, H10H, H12I H16H, & M6H
11-723	K375	15/381	7.2/3.27	12	Oval	0375, 0377, 0379
11-729	K2962	13½/343	6/2.72	12	Hatchet	2962, CBX2, SH2, AH2 2961, 2981. FAH2, FAPH2
11-732	KRB2	18/457	7.2/3.27	12	Hatchet	RB2
11-734	K565	16/406	6/2.72	12	Hatchet	BOX, 565½, 3020, 302 (13" Handle Length)
11-784	K740	33/838	3/1.36	2	Adze	740 Adze
11-811	K375AE	15/381	6/2.72	12	Adze	0375, 0377, 0379, 0273, 0281, 0282, 0283, 0272

Safety Goggles



Industrial quality. Ultra light, impact resistant, washable and well ventilated. Complies with OSHA standards. Attractively carded.

Cat.	Sales No.	Туре	Shelf Pack wt. lb/k	Shelf Pack
11-513	PSG	Ultra Light	2.0/0.91	6

Plumb modules

For use with the Cooper Tool wall. For additional information regarding the Cooper module system see the last 2 pages of this catalog.

TW-60 (11-552-WD1) Fiberglass hammers module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 32 lb/14.51 Kg. Contains: Two (2) each 11-400 (FA571), 11-402 (FA57), 11-403 (FA572), 11-415 (FA57R), 11-406 (FA16), 11-654 (FG16), TW-60A (11-551) refill assortment only.

TW-61 (11-562 – WD2) Hickory handled hammers module



Size: 16''/400mm x 29''/740mm (A) Shipping weight: 28 lb/12.70 Kg. Contains: Two (2) each 11-435 (OAN-11), 11-436 (OAN- $11\frac{1}{2}$), 11-438 (OAN12), 11-454 (L81), 11-464 (SN1 $1\frac{1}{2}$), 11-440 (CR1 $1\frac{1}{2}$) TW-61A (11-560) refill assortment only.

TW-62 (11-542 – WD3) Hickory handled Ball pein hammers



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 28 lb/12.70 Kg. Contains Two (2) each 11-496 (0371), 11-497 (0372), 11-498 (0373), 11-499 (0374), 11-520 (0375), 11-521 (0377), TW-62A (11-540) refill assortment only.

TW-63 (11-532) Ultralite hammers module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 35 lb/15.87 Kg. Contains: Two (2) each 11-469 (UL20), 11-470 (UL16), 11-471 (UL13), 11-472 (UL22R), 11-473 (UL16R), 11-474 (LL16), 11-475 (LL16R) TW-63A (11-533) refill assortment only.

PAD (11-988) Axe display

Space saver heavy duty wire unit to merchandise your Plumb axes in a minimum of wall space. Keeps tools neatly organized.



Shipping weight: 1 lb/.45 Kg. Holds 4 axes.

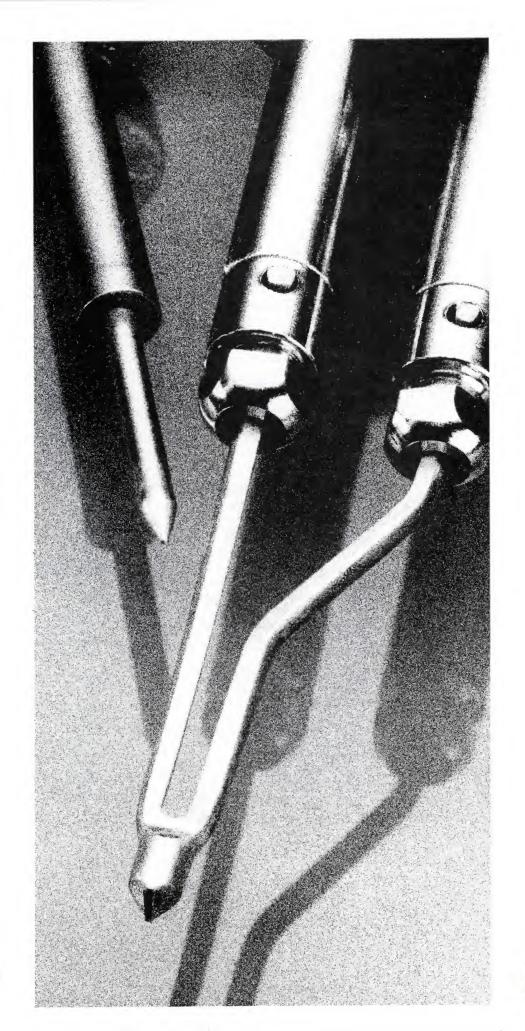
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CooperTools

Weller

Founded in 1945, Weller has become the world's leading supplier of professional quality soldering equipment, including the famous Weller temperature controlled irons and soldering guns. Weller also makes advanced soldering and desoldering stations and irons for sophisticated industrial needs, plus a series of handy soldering and miniature power tool kits for home craftsmen, hobbyists and light industry.

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Note:

N/S No. is an abbreviation of NIDA/SIDA Number.

Temperature controlled soldering stations

EC1000 and EC2000 Electronic controlled soldering stations – variable





EC2000

Technologically the most advanced soldering stations on the market, the EC1000 and EC2000 are both capable of handling all the delicate soldering operations necessary in even the most sophisticated applications.

Both units offer the ultimate in controlled temperature hand soldering. Tip temperature is electronically controlled throughout the temperature range of 350°F(177°C) to 850°F(454°C). The units are calibrated to within 10°F(6°C). Tip temperature control is maintained within specification over line voltage variations of 10% and ambient temperature range of 60°F(15.6°C) to 110°F(43°C).

The EC1000 station is dial controlled and is calibrated in $10^{\circ}F(5^{\circ}C)$ steps.

The EC2000 has a three-digit LED readout displaying temperature settings and tip temperatures with a resolution and setability of 1°F(1°C). Instantaneous tip temperature readings are available by setting the selector switch to "read" position. The electronic system utilizes thyristor power control with zero voltage thyristor drive. This insures that no high voltage spikes or magnetic fields will be present on the soldering tip. In addition, the power unit is isolated from the A.C. line by a transformer and only 24 VAC isolated voltage is used to drive the heating element. The tool tip is also grounded through the power unit three wire cord. These features combine with the calibrated temperature control to give the greatest safety for sensitive expensive electronic circuit, hand soldering.

Both units feature extra large sponge, iron holder, tip holding tray, solder drip shield and lighted on/off switch.

Model	N/S No.	V	W	HZ	Description	Pack wt. oz/kg
EC1000	47729	110/120	60	60	Complete station °F	62/1.76
EC1000D		220/240	60	50/60	Complete station °C	63/1.78
EC2000	47730	110/120	60	60	Complete station °F (LED display)	63/1.78
EC2000D	47819	220/240	60	50/60	Complete station °C (LED display)	63/1.78

Both EC1000 and EC2000 meet government specification requirements for contract work.

EC1000 and EC2000 replacement parts and accessories

Part No.	N/S No.	Description	Shelf Pack
EC1002A	47685	Power unit only for EC1000 (110/120V)	1
EC2002A	47686	Power unit only for EC2000 (110/120V)	1
EC1201A	47684	Soldering iron with ETA tip	1
EC205	47732	Sponge (Pack of 10)	1
EC208	47731	Heater assembly	1
EC210	47717	Display board - calibrated	1
EC211	47718	Power transformer	11
EC212	47719	Circuit breaker	1
EC213	47798	Plug/Recept. kit	1
EC219	47813	Switch	1
EC220	47814	Switch – 240V	1
BA60	47396	Nut assembly	1

ET series tips for EC1000 and EC2000



Cat. No.	N/S No.	Description	Shelf Pack
ETA*	47728	16"/1.58mm tip screwdriver	10
ETB*	47727	3/2"/2.38mm tip screwdriver	10
ETC*	47726	1/2 /3.17mm tip screwdriver	10
ETD*	47725	3 / 4.76mm tip screwdriver	10
ETH*	47723	½"/0.79mm tip screwdriver	10
ETK*	47721	3/8/4"/1.19mm tip long screwdriver	10
ETL*	47720	5/8/1.98mm tip long screwdriver	10
ETM	47810	½"/0.8mm tip long screwdriver	10
ETO*	47722	½" /0.79mm tip long conical	10
ETP*	47724	1/32" /0.79mm tip conical	10
ETR	47811	1.8 / 1.5mm tip narrow screwdriver	10
ETS*	47805	1 / O.38mm tip conical	10
ETCC	47808	½"/3mm tip single flat	10
ETDD	47809	3 "/4.7mm tip single flat	10
L100	17000	16 7 TOTAL CIP ON GIO HAC	

All ET-series tips are individually carded and packed 10 to a box.

*Available bulk packed (100 multiples only). Minimum order quantity is 200 lots. A greater discount is offered on orders of 600 lots and above. To order in bulk, please add suffix "B" to Cat. No. Example, ETA-B.

Controlled – Output soldering stations WTCPN



Exclusive Weller closed loop, low-voltage circuit automatically controls output and temperature in three ranges: $600^{\circ}F(315^{\circ}C)$, $700^{\circ}F(371^{\circ}C)$ and $800^{\circ}F(427^{\circ}C)$. Temperature selected simply by changing the grounded, heat-sensing tip with knurled thumbscrew. Safe for IC soldering. Comfortable lightweight pencil iron has heat shield, non-burnable silicone rubber cord, and locking designs for easy interchangeability. Power unit, with contemporary impact-resistant case, has unitized on/off toggle switch and neon indicator light, non-heat sinking iron holder, storage tray for extra tips, and tip cleaning sponge with receptacle. 3-wire 4.5 ft. (1.4m) long cord. Furnished with $\frac{1}{16}^{\circ}$ (1.58mm) screwdriver tip $700^{\circ}F(371^{\circ}C)$ PTA7. UL-listed. Carton weight 21 lb/9.53 kg. 6 in a carton.

Cat. No.	N/S No.	V	W	Hz	Description
WTCPN	47208	120	60	60	Complete station
WTCPN-D	47882	220/240	60	50/60	Complete station for export

Zero voltage soldering station

The WTCPZ has a controlled output power unit identical to WTCPN model but offers the TC2012 pencil which has a special zero voltage electronic switching circuit that prevents possible damage due to voltage transients.

Cat.	N/S				
No.	No.	V	W	Hz	Description
WTCPZ	47689	120	60	60	Complete station

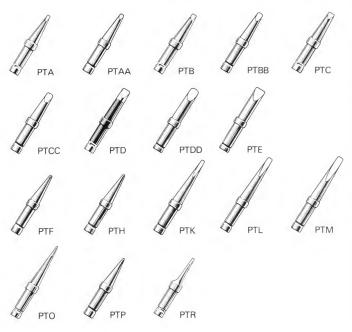
Replacement parts and accessories for WTCPN & WTCPZ

Cat. No.	N/S No.	Description	Shelf Pack
TC201	47505	Soldering Pencil w/PTA7 Tip	1
TC202	47509	Power unit only, 120V, includes sponge, iron holder	1
TC203	47512	Cord set w/handle	1
TC204	47516	Iron Holder w/funnel	1
TC205	47517	Sponge	10
TC206	47519	Tip Tray	1
TC257	47639	5 tip package: PTA7, PTC7, PTD7, PTO7, PT-L7	1 pkg
TC207	47521	Switch/Light for Power Unit	1
TC208	47522	Heater Element for Soldering Pencil	1
TC210	47815	Power transformer – WTCP	1
TC369A	47797	Plug repair kit	1
SW60	47407	Switch Assembly for Soldering Pencil	1

Cat. No.	N/S No.	Description	Shelf Pack
BA60	47396	Barrel Nut Assembly for Soldering Pencil	1
EC219	47813	Power switch	1
EC220	47814	Power switch - 220/240V	1
Replacen	nent parts a	and accessories for WTCPZ	
TC201Z	47690	Soldering pencil with PTA7 tip	1
DSTCP	47200	De-soldering adaptor	1
TC203Z	47712	Cord set	1
TC208Z	47688	Cord set	1
TC209	47687	PTD Circuit	1

PT series tips for model WTCPN

Weller industrial soldering tips have heavy iron plating, with antiwetting chrome coating. Genuine Weller tips for WTCPN are all marked with the "Weller" name and style. Stamped on the base is the numeral 6, 7, or 8, indicating the control temperatures 600°F(315°C), 700°F(371°C) or 800°F(427°C).



Catalog 600°F (315°C)	Numbers (N 700°F (371°C)	N/S No.) 800°F (427°C)	Tip Size	Description	Reach
PTA6 (47301)	PTA7* (47322)	PTA8* (47341)	18"/1.5mm	Screwdriver	5"/16mm
PTAA6 (47302)	PTAA7* (47323)	PTAA8 (47342)	1 ₁₈ /"/1.5mm	Single Flat	§"/16mm
PTB6 (47303)	PTB7* (47324)	PTB8* (47343)	$\frac{3}{32}$ "/2.4mm	Screwdriver	§"/16mm
PTBB6 (47304)	PTBB7 (47325)	PTBB8 (47344)	$\frac{3}{32}$ "/2.4mm	Single Flat	§"/16mm
PTC6 (47305)	PTC7* (47326)	PTC8* (47345)	1 /3mm	Screwdriver	ỗ"/16mm
PTCC6 (47306)	PTCC7 (47327)	PTCC8 (47346)	1"/3mm	Single Flat	§"/16mm
PTD6 (47307)	PTD7* (47328)	PTD8* (47347)	3 /4.7mm	Screwdriver	¾″/19mm
PTDD6 (47308)	PTDD7 (47329)	PTDD8 (47348)	3 /4.7mm	Single Flat	¾″/19mm
PTE6 (47309)	PTE7* (47330)	PTE8* (47349)	15/6/mm	Screwdriver	¾″/19mm
PTF6 (47310)	PTF7* (47331)	PTF8* (47350)	1/32"/0.8mm	Conical Flat	§"/16mm
PTH6 (47311)	PTH7* (47332)	PTH8* (47351)	1/32"/0.8mm	Screwdriver	§"/16mm
PTK6 (47312)	PTK7* (47333)	PTK8* (47352)	3 "/2mm	Long Screwdriver	1"/25mm
PTL6 (47313)	PTL7* (47334)	PTL8* (47353)	5 "/0.8mm	Long Screwdriver	1"/25mm
PTM6 (47314)	PTM7* (47335)	PTM8* (47354)	¹ / ₃₂ "/0.8mm	Long Screwdriver	1"/25mm
PTO6 (47315)	PTO7* (47336)	PTO8* (47356)	1 ₃₂ "/0.8mm	Long Conical	1"/25mm
PTP6 (47316)	PTP7* (47337)	PTP8* (47355)	1/32" /0.8mm	Conical	§″/16mm
PTR6 (47317)	PTR7* (47338)	PTR8* (47358)	18"/1.5mm	Narrow Screwdriver	§″/16mm
PTS6 (47802)	PTS7* (47803)	PTS8* (47804)	1 /0.40mm	Conical Tip	§″/16mm

All PT-series tips are individually carded and packed 10 to a box.

*Available bulk packed (100 multiples only). Minimum order quantity is 200 lots. A greater discount is offered on orders of 600 lots and above. To order in bulk, please add suffix "B" to Cat. No. Example, PTA7-B.

DSTCP (47200) Desoldering adaptor



Versatile attachment for Models WTCPN permits operator to desolder and resolder with the same tool. Available desoldering tiplets listed under Model DS40 DeSoldering/Repair Tool.

WM120 pencil thin soldering iron

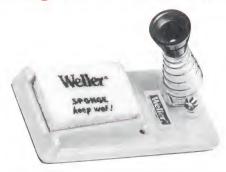


The Weller WM120 - 12 Watt miniature packs quality features standard from Weller into a lightweight pencil thin soldering iron with a break-resistant stay-cool handle.

Designed for soldering miniature heat and voltage sensitive components, where precision touch is essential, the WM120 weighs 7 oz/198 g and measures 7"/178mm less tip. It develops a tip temperature of $800^{\circ}F(427^{\circ}C)$ and accommodates the Weller MP series of automatic slide-in tips. UL-listed.

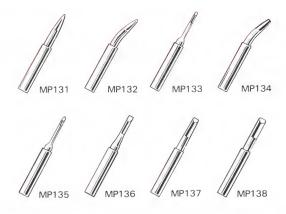
Cat. No.	N/S N.	W	V	Hz	With Tip	Pack wt. lb/kg	Shelf Pack
WM120	47711	12	120	50/60	MP131	3/1.36	6

Soldering tool stand for WM120



Cat.	N/S		Shelf
No.	No.	Description	Pack
PHM120	47789	Complete with base, sponge and receptacle	6

MP series tips for WM120

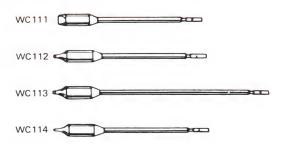


Top quality, iron plated tips with anti-oxidation coating.

N/S	Tip	Description	Shelf Pack
IVO.	Size	Description	Fack
47454	½"/0.40mm	Conical	1
47457	½"/0.80mm	Bent Conical	1
47458	$\frac{1}{32}$ "/0.80mm	Single flat 45°	1
47459	3 / /1.19mm	Bent conical	1
47460	3 / /1.19mm	Single flat 45°	1
47461	16"/1.59mm	Narrow screwdriver	1
47462	5/8/4"/2mm	Screwdriver	1
47463	1/3/3mm	Chisel	1
	No. 47454 47457 47458 47459 47460 47461 47462	No. Size 47454	No. Size Description 47454 \$\frac{1}{84}\tilde{\pi}\$ (0.40mm) Conical 47457 \$\frac{1}{27}\tilde{\pi}\$ (0.80mm) Bent Conical 47458 \$\frac{1}{27}\tilde{\pi}\$ (0.80mm) Single flat 45° 47459 \$\frac{3}{4}\tilde{\pi}\$ (1.19mm) Bent conical 47460 \$\frac{3}{4}\tilde{\pi}\$ (1.19mm) Single flat 45° 47461 \$\frac{1}{16}\tilde{\pi}\$ (1.59mm) Narrow screwdriver 47462 \$\frac{5}{64}\tilde{\pi}\$ (2mm) Screwdriver

All MP series tips are individually carded and packed 10 to a box.

WC series tips for WC100



Cat.	N/S No.	Tip Size	Description	Shelf Pack
WC 111	47440	1"/3mm	Diameter Tip	6
WC112	47442	1 ₆ "/ 1.59mm	Diameter Tip	6
WC113	47443	<u>⊹ե″/ 1.59mm</u>	Long Reach	6
WC114	47446	12"/0.80mm	Conical	6

DS600 Portable Desoldering Station



The DS600 Portable Power Desoldering Station is a self-contained system which requires a 120 volt 60 Hz A.C. power source for operation. The station has been designed for use in industrial and service applications where portability or a lack of a suitable air source requires a self-contained unit.

A unique feature of this new station is that the desoldering operation is controlled with a push button to control the vacuum pulse. The push button is built into the handle of the desoldering iron in such a manner as to allow either left or right handed operation. The desoldering head design is provided with positive sealing to prevent vacuum loss. The desoldering head supplied with the unit is temperature controlled to 700°F(371°C) by the reliable Weller "Magnastat" closed loop temperature control system. The desoldering iron heating element and push button control circuit are electrically isolated from the 120 VAC power supply through a 120/24 volt step-down transformer. A 24 volt signal from the push button activates a photo-isolator circuit which turns the 120 volt compressor motor on and off. This circuit was designed to prevent voltage spikes from the motor or push button reaching the desoldering iron tip. The desoldering iron tip is also grounded to prevent damage to voltage sensitive components. Other features:

Carry handle.

Power cord storage.

Built-in iron holder. Improved quick disconnect for desoldering iron. Low maintenance vacuum system.

Cat.	N/S No.	Description	V	W	Hz	Pack wt. lb/kg	Shelf Pack	
DS600	47820	Complete station	120	50	50/60	-	1	
Accesso	ries for DS	5600						
DS601	47868	De-soldering iron v	De-soldering iron with 700°F(370°C) head					
DS103	47432	Collector tube with	Collector tube with gasket and filter					
DS104	47433	Clean-out tool					1	
DS106	47435	Sponges					10	
DS602	47869	Power unit only					11	

DS500 Temperature controlled desoldering station



Stainless Steel lined de-soldering tiplets draw molten solder into see-through collecting tube that is easily cleaned or replaced. Vacuum is created by conversion of air pressure through a special transducer. The station is designed to use air from an exterior air system. A foot switch turns the vacuum off and on. Vacuum level is adjusted by an air pressure regulator. Cabinet-mounted gauge shows vacuum level. Easy maintenance is a primary feature of the DS500.

Other temperature controlled system features include:

● 8 De-soldering tiplets available. ● Stainless steel liners brazed to tiplets for better heat transfer and longer life. ● Lighted on-off power switch. ● Quick-connect locking plug to prevent accidental loss of power. ● Collector tube filter to prevent solder from entering and clogging vacuum tube ● Vacuum adjustable from 5–20″ Hg. ● Operates easily using factory air. ● Available in 700°F(370°C) and 800°F(427°C). ● 3-wire power cord. ULlisted. DS114 desoldering tiplet fitted as standard.

Cat. No.	N/S No.	Description	V	W	Hz	Pack wt. lb/kg	Shelf Pack
DS500	47670	Complete station	120	50	50/60	_	1
Accesso	ries for DS	3500					
DS102	47431	Desoldering iron w	ith 700	°F(37	0°C) hea	d	5
DS103	47432	Collector tube with	Collector tube with gasket and filter				
DS104	47433	Clean out tool					1
DS105	47434	Sponge holder w/s	Sponge holder w/spring and clean out tool				
DS106	47435	Sponges only	Sponges only				
DS107	47436	Tool holder					
DS501	47671	Power unit					1
DS502	47672	Foot switch					1
DS503	47673	Tool holder					1
DS504	47674	Transducer					1

DS100 Controlled-output de-soldering and re-soldering station



The Weller power vacuum De-Soldering and Re-Soldering Station is specifically designed for printed circuit board repair on re-work lines.

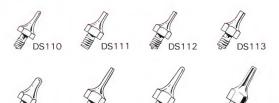
Famous Weller closed-loop temperature control circuit and grounded tips protect sensitive components while soldering or desoldering. Choice of 600°F(315°C), 700°F(370°C) or 800°F(427°C), controlled soldering temperatures by changing special heat-sensing tips. De-soldering temperature controlled at 700°F(370°C) or 800°F(427°C) through interchangeable heads. See-thru solder collector is easy to clean or replace. Burn resistant silicone rubber cords and low-voltage tool inputs give longer life and added safety. High impact-resistant tool handles and stainless steel barrels mean longer tool usage. Operates from factory air (30-130 p.s.i.) and line voltage. Complete with foot switch indicating light/on-off switch, dual safety tool holder, vacuum adjustment gauge, 5 assorted tiplets (DS110-DS114) for desoldering iron. $\frac{1}{16}$ "/1.59mm screwdriver solder tip for 700°F(370°C) operation (PTA7), holder for tip-cleansing sponge and spare tiplets, and instructions, 3-wire power cord. UL-listed.

Cat. No.	N/S No.	Description	V	W	Hz	Pack wt. lb/kg	Shelf Pack
DS100	47416	Complete station	120	110	50/60		1
Accesso	ries for DS	S100					
DS101	47429	Soldering iron with	PT7A t	ip			1
DS101Z	47691	Zero voltage iron					1
DS102	47431	De-soldering iron with 700°F(370°C) head					5
DS102Z	47692	Zero voltage iron	Zero voltage iron				
DS103	47432	Collector tube with	Collector tube with gasket and filter				
DS104	47433	Clean-out tool					1
DS105	47434	Sponge holder w/s	pring ar	nd clear	out tool		1
DS106	47435	Sponges only	Sponges only				10
DS107	47436	Tool holder	Tool holder				

DS202 (47511) installation kit

Includes: 10ft $\frac{1}{4}$ "/3056mm O.D. poly tubing and one each $\frac{1}{4}$ "/6mm x $\frac{1}{8}$ "/3mm tubing fitting, $\frac{1}{4}$ "/6mm x $\frac{1}{4}$ "/6mm tubing fitting, $\frac{3}{8}$ "/9.5mm x $\frac{1}{4}$ "/6mm bushing, couples and nipple.

Replacement tiplets for DS100, DS500 and DS600



I.D. Length Pac mm .025"/0.70mm ½"/13mm 5 mm .025"/0.70mm ½"/13mm 5
1020 1011011111 2 11011111
mm .025"/0.70mm ½"/13mm 5
mm .036"/0.82mm ½"/13mm 5
mm .046"/1.19mm ½"/13mm 5
mm .071"/1.80mm $\frac{1}{2}$ "/13mm 5
mm .025"/0.70mm ¾"/19mm 5
mm .045"/1.17mm ¾"/19mm 5
-

For replacement soldering tips for DS100, see PT series tips.

*Available bulk packed (100 multiples only). Minimum order quantity is 200 lots. A greater discount is offered to orders of 600 lots and above. To order in bulk, please add suffix" B" to Cat. No. Example, DS112B.

Replacement parts and accessories for DS100, DS500 and DS600

Cat.	N/S	Day 1971	For	Shelf Pack (box)
No.	No.	Description	Station	
DS118	47437	Retainer springs	DS100	5
DS201	47474	Fuses	DS100/DS500/DS600	5
DS202	47511	Instal. Kit: tubing, fittings, bushings, etc.	DS101	1
DS203	47513	Fuses 32A Type N	DS100	5/card
DS204	47515	Filter	DS100/DS500	10
DS205	47653	In line filter	DS100/DS500	10
DS206	47697	Gaskets	DS100/DS500	10
DS217	47526	Desoldering head 700°F(370°C) w/spring	DS100/DS500	1
DS218	47527	Desoldering head 800°F(427°C) w/spring	DS100/DS500	1
DS220	47528	Vacuum hose, 18 feet	DS100	1
DS225	47529	Transducer assembly	DS100	1
SW60	47407	Switch assembly	DS500	1
HE60	47395	Heating element	DS500	1

Controlled-output soldering irons

High quality portable tools for production work with all the benefits of controlled output and temperature. Temperature selection 600°F(315°C), 700°F(370°C) or 800°F(427°C) by merely changing tips. Light blue color. Use with Weller PH or SF series soldering tool stands to effect a complete soldering station. 6 ft/1.82m Cord.

W60 series irons



Fitted with CT5A7 screwdriver tip.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
W60	47408	60	120	50/60	4/1.81	6
W60-3*	47409	60	120	50/60	4/1.81	6

^{*-3} denotes available with 3-wire cord.

W100 series irons

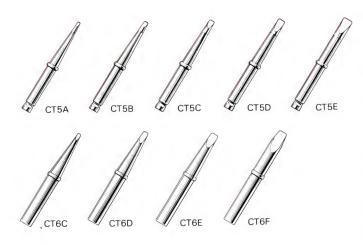


Fitted with CT5F7 screwdriver tip.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
W100	47426	100	120	50/60	43/2.15	6
W100-3*	47427	100	120	50/60	43/2.15	6

^{*-3} denotes available with 3-wire cord.

CT series tips for W60 and W100 soldering irons



Catalo 600°F (315°C)	og Numbers 700°F (370°C)	800°F (427°C)	For Model	Tip Size	Descr.	Reach
CT5A6 (47261)	CT5A7 (47262)	CT5A8 (47263)	W60	18"/1.58mm	Scrd.	1"/25mm
CT5B6 (47264)	CT5B7 (47265)	CT5B8 (47266)	W60	$\frac{3}{32}$ "/2.4mm	Scrd.	1"/25mm
CT5C6 (47267)	CT5C7 (47268)	CT5C8 (47269)	W60	1 /3mm	Scrd.	1"/25mm
CT5D6 (47271)	CT5D7 (47272)	CT5D8 (47273)	W60	3 "/4.8mm	Scrd.	1"/25mm
CT5E6 (47274)	CT5E7 (47275)	CT5E8 (47276)	W60	‡″/6mm	Scrd.	1"/25mm
CT6C6 (47284)	CT6C7 (47285)	CT6C8 (47286)	W100	½"/3mm	Scrd.	1"/25mm
CT6D6 (47287)	CT6D7 (47288)	CT6D8 (47289)	W100	3 /4.8mm	Scrd.	1"/25mm
CT6E6 (47290)	CT6E7* (47291)	CT6E8 (47292)	W100	¼″ /6mm	Scrd.	1"/25mm
CT6F6 (47293)	CT6F7* (47294)	CT6F8 (47295)	W100	₹″/10m	Scrd.	1"/25mm

All CT-series tips are individually carded and packed 10 to a box. *Available bulk packed (100 multiples only). Minimum order quantity is 200 lots. A greater discount is offered on orders of 600 lots and above. To order in bulk, please add suffix "B" to Cat. No. Example, CT6E7-B.

DS-60 (47397) Desoldering adaptor



For use with model W60 iron. For desoldering tiplets available see page 10 listed under Model DS40 desoldering/repair tool.

Soldering tool stands for W series irons

NOTE: The temperature of the W series irons is automatically controlled; therefore the use of improper metallic stands will affect the life of both tool and tip. The following Weller stands are recommended for use with W60 and W100 series irons because they employ the non-heat-sinking tool holder of the spring funnel type, designed so that the tip and barrel cannot have heat inadvertently drawn off by contact with the spring.



Soldering tool stand with base, sponge and receptacle. For W60, WP25, WP40 and irons with barrel diameters up to $\frac{157}{2}$ " /11.90mm.

Cat.	N/S No.	For irons	Pack wt. lb/kg	Shelf Pack
PH60	47401	W60, WP25, WP40	11½/5.22	6



Same as PH60, but for W100 and irons with barrel diameters up to $\frac{19}{32}$ "/15.08mm.

Cat.	N/S No.	For irons	Pack wt. lb/kg	Shelf Pack	
PH100	47420	PH60	$11\frac{1}{2}/5.22$	6	



Side rail stand, for attachment to wall or bench. For model W60 and irons with barrel diameters up to $\frac{15}{2}$ "/11.90mm.

Cat.	N/S	For irons	Pack wt.	Shelf	
No.	No.		lb/kg	Pack	
SFA60	47404	W60	23/1.25	6	





Same as SFA60, but for W100 and irons with barrel diameters up to $\frac{19}{32}$ "/15.08mm.

Cat.	N/S	For irons	Pack wt.	Shelf
No.	No.		lb/kg	Pack
SFA100	47421	W100	_	6

Replacement parts for soldering tool stands

Cat.	N/S		Shelf
No.	No.	Description	Pack
SF60	47403	Funnel	5
SFW60	47405	Spring funnel only for PH60 stand	5
SFW100	47422	Spring funnel only for PH100 stand	5
SP60	47406	Sponge only for PH60 and PH100	1

Professional soldering irons

Top quality, industrial grade tools develop 750°F(399°C) temperature. Rugged stainless steel barrel construction. Long life double coated tips. High efficiency. Popular pencil styling. Light blue handle with black heat shield. Only $7\frac{\pi}{8}$ "/200m long. $1\frac{\pi}{4}$ oz/49g 6 blister-packed or boxed per $6\frac{\pi}{2}$ "/165mm x 11"/1279m x 6"/152m master carton 4 Ft./1.22m Cord. ULlisted.

WP25 series irons



Fitted with ST1 screwdriver tip.

Cat.	N/S No.	W	V	Hz	Pack wt.	Shelf Pack
WP25	47373	25	120	50/60	2½/1.13	6
WP25-3*	47372	25	120	50/60	2½/1.13	6
The following	ng iron is avai	lable for	Export			
WP25D	47883	25	220/240	50/60	2½/1.13	6

^{*}denotes available with 3-wire cord.

WP40 series irons



Fitted with ST3 screwdriver tip.

Cat.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
WP40	47390	40	120	50/60	23/1.25	6
WP40-3*	47391	40	120	50/60	23/1.25	6

^{*}denotes available with 3-wire cord.

Replacement tips for WP25 and WP40 irons



Top quality, iron plated tips with anti-wetting chrome coating. All tips are pre-tinned.

Cat.	N/S	Tip		Shelf
No.	No.	Size	Description	Pack
ST1	47221	1/1/1.6mm	Screwdriver	10
ST2	47243	3/2"/2.4mm	Screwdriver	10
ST3	47251	1/3/3mm	Screwdriver	10
ST4	47260	3 ₁₆ "/4.8mm	Screwdriver	10
ST5	47280	1/32"/0.8mm	Single Flat	10
ST6	47318	1/32"/0.8mm	Screwdriver	10
ST7	47339	1/32"/0.8mm	Conical	10
ST8	47357	16"/1.6mm	Narrow Screwdriver	10

All ST-series tips are individually carded packed 10 to a box. Also available bulk packed (100 multiples only).

Soldering tool stands for WP25 and WP40



Versatile bench stand for WP25 and WP40 irons, can be either free standing or mounted. Sturdy aluminum construction. Prevents accidental burns on bench or work surface.

Cat. N/S		For irons	Pack wt.	Shelf
No. No.			lb/kg	Pack
PH25	47371	WP25 and WP40	3/1.36	6

Model PH60



Cat.	N/S No.	For irons	Pack wt. lb/kg	Shelf Pack
PH60	47401	WP25, WP40, W60	111/5.22	6

Model SFA1

Iron holder less base, for attachment to wall or bench. For WP25 and WP40 and irons with barrel diameters up to $\frac{3}{8}$ "/10mm.

Cat.	N/S	Description	Pack wt.	Shelf
No.	No.		lb/kg	Pack
SFA1	47220	Iron holder less base	2½/1.13	6

Desoldering/repair tool



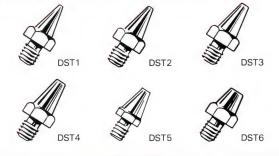
A valuable repair tool for servicing printed circuit boards and solid state electronics, allowing components to be removed and replaced quickly with less chance of heat damage. Complete unit includes 40W, 120V tool with 2-wire or 3-wire cord and heat shield, vacuum bulb, de-soldering assembly, and nickel-plated tiplet with .063"/1.58mm opening. UL-listed.

Cat. No.	N/S No.	W	V	Hz	Tiplet	Pack wt. lb/kg	Shelf Pack
DS40	47377	40	120	50/60	DST4	31/1.71	6
DS40-3	47378	40	120	50/60	DST4	41/1.93	6

Replacement parts

DSF40	47379	Replacement frame 2-wire	6
DSF40-3	47380	Replacement frame 3-wire	6
DSH40	47381	Head Assembly with DSF-tip	1

Replacement tiplets for DS40, DS60 and DSTCP



Cat.	N/S	m - ±		
No.	No.	O.D.	I.D.	Reach
DST1	47209	.078"/1.98mm	.038"/1mm	.500"/12.7mm
DST2	47236	.095"/2.4mm	.046"/1.19mm	.500"/12.7mm
DST3	47246	.125"/3.17mm	.059"/1.4mm	.500"/12.7mm
DST4	47257	.135"/3.3mm	.063"/1.65mm	.500"/12.7mm
DST5	47227	.155"/3.80mm	.078"/1.98mm	.500"/12.7mm
DST6	47296	.170"/4.3mm	.090"/2.37mm	.375"/9.52mm

¹ tip per card, 10 tips per box. Also available bulk packed (100 multiples only). May be used also with DS100, but with possibility of reduced tip life.

Controlled-output field soldering irons



Versatile controlled tool for field servicing. Operates from suitable batteries or low voltage power source. Complete with battery clips and 12 ft. cord. Tip temperature is $700^{\circ}F(370^{\circ}C)$. Screwdriver blade tip is $\frac{3}{16}$ " /4.76mm wide. UL-listed.

Cat. No.	N/S No.	V	lb/kg	Shelf Pack
TCP12	47651	12 to 14	_	3
TCP24	47652	24 to 28	_	3

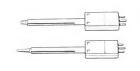
Solid state soldering gun



Temperature controlled with fast 6-second heat-up interchangeable power heads give choice of $600^{\circ}F(315^{\circ}C)$ or $700^{\circ}F(370^{\circ}C)$ capability. Designed for modern solid state electronic work and will not damage sensitive components. Lightweight 7 oz/198g. Slim, long-reach barrel has double-coated tip tested for 30,000 connections. UL-listed. Carded packed 6 per master carton measuring $8\frac{1}{4}$ "/210mm x $7\frac{3}{8}$ "/187mm x $12\frac{5}{8}$ "/321mm.

Cat. No.	N/S No.	W	V	Hz	Description	Pack wt. lb/kg	Shelf Pack
GT7A	47320	150	120	60	Complete gun with 700°F(370°C) power head $\frac{3}{16}$ ″ /4.8mm chisel tip	51/2.38	6
GT6B	47297	150	120	60	Complete gun with 600°F(315°C) power head ½"/3mm cone point tip	51/2.38	6
GT7A-3	47321	150	120	60	Same as GT7A except furnished with 3-wire cord	51/2.38	6
GT6B-3	47299	150	120	60	Same as GT6B except furnished with 3-wire cord	51/2.38	6





Replacement parts for solid state gun

Cat. No.	N/S No.	Description	For series	Pack wt. lb/kg	Shelf Pack
7A	47319	700°F(370°C) power head with 18" /4.8mm chisel tip	GT7A/GT6B	1/0.45	6
6B	47283	600°F(315°C) power head with \(\frac{1}{3}'' \) /3mm cone point tip	GT7A/GT6B	1/0.45	6
GT	47201	Handle only with trigger and cord	GT7A/GT6B	_	1
GT3	47247	Handle only with trigger and cord	GT7A/GT6B		1

Accessories

De-soldering bulb



Ideal for electronic kit building or electrical work, the bulb may be used with any Weller soldering iron. Tip is made of a highly heat-resistant material which will not scratch delicate PC boards. Carded.

Cat.	N/S No.	Pack wt.	Shelf Pack
AC303P	47539		12

RC60 Rosin-core solder



13 ft./3.96m of .040" diameter, 60/40 premium-alloy, activated rosin-core solder especially formulated for electronics work. Dispenser tube with hang-up eye.

Cat.	N/S	Pack wt.	Shelf
	No.	lb/kg	Pack
RC60	47402	1½/3.3	24

RC40 Rosin-core solder



 $5~{\rm ft}/1.52 {\rm m}$ of .062" diameter, 40/60 alloy solder, excellent for electrical/electronics use. Carded.

Cat.	N/S	Pack wt.	Shelf
	No.	lb/kg	Pack
RC40	47385	1/2.2	12

AC40 Acid-core solder



 $5~{\rm ft}/1.52 m~of~.063^{\prime\prime}$ diameter, 40/60~alloy, acid-core solder principally for sheet metal work. Carded.

Cat.	N/S	Pack wt.	Shelf
No.	No.	lb/kg	Pack
AC40	47376	1/2.2	12

Soldering Guns and Kits

Universal (140/100 watts)



All purpose gun. Fingertip, trigger selection of high or low output from this instant-heat gun that's ready to solder in 6 seconds. High efficiency tip of pre-tinned pure copper. Light illuminates work. Compact, balanced pistol-grip design. Soldering hints booklet included. 2-wire cord. UL-listed. Carded.

Cat.	N/S				Pack wt.	Shelf
No.	No.	W	V	Hz	lb/kg	Pack
8200	47584	100/140	120	50/60	17½/7.94	6
8200-3*	47585	100/140	120	50/60	17½/7.94	6
8200W	47580	100/140	120	50/60	17½/7.94	6
The follow	ing gun is	available for	export			
8200D	47597	100/140	220/240	50/60	17½/7.94	6

^{*-3} denotes available with 3-wire cord.

Professional (260/200 watts)



Heavy duty gun. Highest output gun with 2-position trigger selection of dual heats. Heavy gauge, high efficiency, pre-tinned copper tip comes up to temperature in 6 seconds. Balanced pistolgrip design with twin lights to illuminate work. Complete with soldering hints booklet. 2-wire cord. UL-listed. Boxed.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
D550	47541	260/200	120	50/60	10/4.54	6
D550-3*	47543	260/200	120	50/60	10/4.54	6
The follow	ing gun is	available for	export (sing	le heat)		
8250D	47599	275	220/240	50/60	10/4.54	3

^{*-3} indicates available with 3-wire cord.

Soldering gun kits Universal 8200PK Kit



8-piece kit includes Weller model 8200 dual heat soldering gun with pre-tinned copper tip, 2 extra un-tinned copper tips, tip-changing wrench, flux brush, soldering aid tool, coil of 40/60 rosin-core solder, and sturdy plastic carrying case, plus soldering hints booklet. UL-listed.

Cat. lo.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
200PK	47586	100/140	120	50/60	22/9.98	6
he follow	ing gun kit	t is available	for export			
3200DPK	47600	100/140	220/240	50/60	22/9.98	3
3200DPK	4/600	100/140	220/240	50/60	22/9.98	

Professional D550PK Kit



8 piece heavy-duty soldering kit featuring the versatile Weller Model D550 soldering gun with pre-tinned heavy copper tip. Kit also includes 2 spare un-tinned tips, tip changing wrench, flux brush, soldering aid tool, coil of 40/60 rosin-core solder and sturdy plastic carrying case plus soldering hints booklet. UL-listed.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
D550PK	47542	260/200	120	50/60	13/5.90	6
The follow	ing gun ki	t is available	for export			
8250DPK	47600	275	220/240	50/60	13/5.90	3

Instant heat soldering gun



Ideal gun that works on home and hobby projects of all kinds applying a "warm" touch to jobs that are hard, sometimes impossible to do without the application of heat. The Instant Heat Gun can be used to cut vinyl tile or vinyl wall and floor covering sheets, to cut plastic cords, to seal and smooth plastics, to cut through thermoplastic materials, as well as the traditional soldering gun uses on metal or electrical connections. Weight 2 lbs. 5 oz. Packed 6 per master carton weighing $18\frac{1}{2}$ lb/8.4 kg.

Cat.	N/S No.	V	Hz	Pack wt. lb/kg	Shelf Pack
9200K	47738	120	50/60	$18\frac{1}{2}/8.40$	6

Standard Lightweight

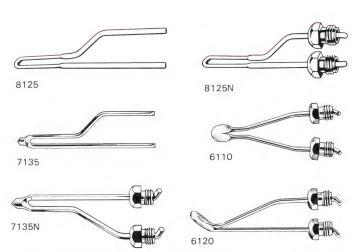




Economy model, small, lightweight for fast soldering jobs. Fingertip trigger for instant heat. The gun has been designed so it can be placed on its back when not in use. Available with soldering tip (7235) only. 2 wire cord. UL-listed. Boxed.

				Doolesset	Shelf
	10/		Ш-		Pack
INO.	VV	V	ПZ	ib/ kg	1 ack
47879	75	120	50/60		6
47886	75	220/240	50/60	_	6
47780	75	120	50/60	_	6
47785	75	240	50/60		6
	47886 47780	No. W 47879 75 47886 75 47780 75	No. W V 47879 75 120 47886 75 220/240 47780 75 120	No. W V Hz 47879 75 120 50/60 47886 75 220/240 50/60 47780 75 120 50/60	No. W V Hz lb/kg 47879 75 120 50/60 — 47886 75 220/240 50/60 — 47780 75 120 50/60 —

Replacement tips for 8200, D550, 9200K & 7200 Guns



Cat. No.	N/S No.	Description	Series No.
8125	47582	Premium iron and tin plated soldering tip — 2 per card	8200
8125N	47583	Premium iron and tin plated soldering tip with tip nuts – 1 per card.	8200
7135	47565	Copper soldering tip - 2 per card	8200/9200K
7135N	47566	Copper soldering tip with tip nuts - 1 per card	8200/9200K
7250	47571	Copper soldering tip - 2 per card	D550
7250N	47572	Copper soldering tip with tip nuts - 2 per card	D550
6110	47556	Cutting tip, nickel plated copper with tip nuts – 1 per card	8200/9200K
6120	47557	Smoothing tip, nickel plated copper with tip nuts – 1 per card	8200/9200K
6130	47558	Cutting tip, nickel plated copper with tip nuts – 1 per card	D550
6140	47559	Smoothing tip, nickel plated copper with tip nuts – 1 per card	D550
7235	47881	Soldering tip	7200

Soldering gun accessories and parts



Cat.	N/S		Shelf
No.	No.	Description	Pack
Solderi	ng aid		
4204	47554		11
Flux bru	ush		
4206	47555		1
Light bu	ulbs/brack	ets	
7194	47567	Bulb-wedge type N guns	1
7195	47568	Light bracket – single wedge	1
7204	47570	Light bracket – oval screw	1
Switch	es		
7323	47574	For single heat models	1
7324	47575	For dual heat models	1
Tip nut	S		
7325	47576	For models D440, 8100, 8200	1
7417	47580	For model D550	1
Cords			
7409	47578	2 wire – all models	1
7412	47579	¾" case screw	1
Housin	gs		
8100-R	H 47581	Right and left housings for 8100 series	1
8200-R	H 47587	Right and left housings for 8200 series	1
D440-R	H 47540	Right and left housings for D440 series	1
D550-R	H 47544	Right and left housings for D550 series	1
Plastic	cases		
PUC20	47366	Plastic utility case with insert for model 8200	1
PUC50	47394	Plastic utility case with insert for model D550	1

Marksman soldering irons

These fine quality soldering irons feature stainless steel barrels, replaceable nickel-plated copper tips and heat/impact resistant handles. All UL-listed.

SP23 Iron (25 watt)



 $8\frac{1}{4}$ "/210mm long. Featherweight soldering iron with replaceable tip and pencil handle, designed for hobbies, kits, radios. $\frac{1}{8}$ "/3mm tip develops 750°F(399°C). Weighs $1\frac{3}{4}$ oz /42 g. Packed 12 cards per master carton, weighing $5\frac{1}{8}$ lb/2.5 kg.

Cat.	N/S			11.	Pack wt.	Shelf
No.	No.	W	V	Hz	lb/kg	Pack
SP23	47368	25	120	50/60	5½/2.50	12
The follo	wing iron is	available	for export			
SP25D	47590	25	220/240	50/60	_	12

SP40 Iron (40 watt)



8¼"/210mm only. Lightweight pencil iron for hobby and electronic work. ¼"/6mm diameter tip develops 900°F(482°C). Weighs 2 oz. Packed 6 cards per master carton weighing 2¼ lb/1.2 kg.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP40	47387	40	120	50/60	21/1.2	6
The follo	wing iron is	available	for export			
SP40D	47592	40	220/240	50/60	2/.90	6

SP80 Iron (80 watt)



9¾"/247mm long. Medium-duty pencil iron for hobby work, stained glass and minor repairs includes soldering iron rest.
¾"/19mm diameter tip develops 900°F(482°C). Weighs 4 oz/13 g. Packed 6 cards per master carton weighing 3 lb/1.36 kg.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP80 .	47413	80	120	50/60	3/1.36	6
The follow	ing iron is	available	for export			
SP80D ,	47593	80	220/240	50/60	23/1.25	6

SP120 Iron (120 watt)



 $11\frac{3}{8}''/289$ mm long. Heavy-duty iron for greater output. Ideal for home work-shop and repairs, stained glass and hobbies, includes soldering iron rest. $\frac{1}{2}''/13$ mm diameter long-life iron plated tip develops $900^{\circ}F(482^{\circ}C)$. Weighs 10 oz/283 g. Packed 3 cards per master carton weighing $3\frac{1}{2}$ lb/1.6 kg.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP120	47453	120	120	50/60	3½/1.6	3
The follow	ving iron is	available 1	for export			
SP 120D	_	120	220/240	50/60	51/2.7	5

SP175 Iron (175 watt)



 $12\frac{1}{2}^{\prime\prime}/318$ mm long. Extra heavy duty iron for demanding jobs like sheet metal work. Includes soldering iron rest. $\frac{5}{8}^{\prime\prime}/16$ mm diameter long-life iron plated tip develops $900\,^{\circ}\text{F}(482\,^{\circ}\text{C})$. Weighs 1 lb/0.45 kg. Packed 3 cards per master carton weighing 4 lb/1.81 kg.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP175	47467	175	120	50/60	4/1.81	3
The follow	ving iron is	available 1	for export.			
SP 175D	_	80	240	50/60	4/1.81	3

Marksman irons replacement tips





These quality tips are made from nickel-plated copper and are available in a variety of styles. MTG series tips are iron plated for the heavy duty irons. Carded as shown below and packed 6 cards per carton.

Cat.	N/S No.	For Model	Tip Size	Description	Packed
MT1	47217	SP23/SP25D	1″/3mm	Cone shape	2/card
MT2	47241	SP23/SP25D	1"/3mm	Screwdriver	2/card
MT3	47250	SP23/SP25D	½"/3mm	Chisel	2/card
MT5	47279	SP23/SP25D	1/3mm	Woodburning	1/card
MT6	47300	SP23/SP25D	∄"/3mm	Smoother	1/card
MT7	47783	SP23/SP25D	_	Macrame	1/card
MT8	47806	SP23WB	_	Woodburning	1/card
MT9	47807	SP23WB	_	Woodburning	1/card
MT10	47361	SP40/SP40D	‡"/6mm	Chisel	2/card
MT20	47365	SP80/SP80D	3"/10mm	Chisel	1/card
MTG20	47659	SPG80	3″/10mm	Chisel	1/card
MTG21	47660	SPG80	‡"/6mm	Chisel	1/card
MTG30	47790	SP120/SP120D	½"/13mm	Chisel	1/card
MTG40	47867	SP175	§"/16mm	Chisel	1/card
HK11	47362	SP23/SP25D	1/3/3mm	Blade and chuck	1/card

Soldering kits for the professional or hobbyist SP23 Kit



Includes Weller SP23 iron, three different pre-tinned $\frac{1}{8}$ "/13mm diameter tips of plated copper. 40/60 rosin-core solder. Helpful hints and instructions on back of card. Carded UL-listed. SP25DK is the same as SP23K except voltage.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP23K	47369	25	120	50/60	_	12
SP25DK	47591	25	220/240	50/60	2/907	12

SPG80 Stained glass soldering iron



The Weller SPG80 is specifically designed for stained glass work. This Medium Duty 80 watt soldering iron has been introduced by Weller for the growing stained glass art and hobby craft group. It comes complete with two new long-life plated tips and soldering iron stand. The new SPG80 with $\frac{1}{4}$ "/6mm and $\frac{3}{8}$ "/110mm chiselshaped tips develops 900°F(482°C) tip temperature for precision soldering of the most intricate work. It measures $9\frac{1}{4}$ "/235mm long and weighs 7 oz/198 g.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SPG80	47662	80	120	50/60	23/1.25	6

SP23HK Hot knife kit



Designed for cutting through plastic and other man-made materials. The super sharp precision blade is boosted with just the right amount of heat for quick, clean accurate cuts. Kit includes SP23 iron, HK11 $\frac{1}{8}^{\prime\prime}/3\text{mm}$ blade and chuck and MT1 $\frac{1}{8}^{\prime\prime}/3\text{mm}$ cone shape soldering tip. Vacuum packed on handy hang-up card. UL-listed.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP23HK	47743	25	120	50/60	4/1.8	12

SP23MS Macrame-slicer/splicer



The Weller SP23MS makes it easy to work with poly cords. Its unique tip, boosted by just the right touch of heat, glides through cord to make a ravel-free cut. Bonding cords together for changes in color or texture takes only seconds. Vacuum packed on handy hang-up card. UL-listed.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP23MS	47782	25	120	50/60	4/1.8	12

SP23WB Woodburning kit



Featherweight iron with replaceable tips and pencil handle, designed for wood and cork burning, leather tooling and candle sculpturing. Kit contains 3 versatile tips: cone, screwdriver and chisel. Each tip is capable of developing a temperature of $825\,^{\circ}\text{F}(440\,^{\circ}\text{C})$. Small, lightweight handle weighs only $1\frac{3}{4}$ oz/42 g, as easy to use as a pencil. 2-wire cord. UL-listed. Vacuum packed on attractive hang-up card, with instructions on back.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
SP23WB	47801	25	120	50/60	4/1.8	12

230K Soldering hobby kit



The twelve piece 230K soldering hobby kit has everything needed for electronic kit soldering, leather tooling, model making, woodburning and plastic sculpturing. 25 watt, 120 volt Marksman soldering iron develops a tip temperature of 750°F(400°C) which makes it ideal for intricate soldering. The 230K is one of the most versatile soldering hobby kits of its kind. Full manual of instructions and uses is enclosed in attractive sturdy carrying case. The 230DK is the same as the 230K except voltage.

Cat. No.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
230K	47530	25	110/130	60	5/2.27	6

250K Weller/Xcelite electronic tool kit



The 250K electronic tool kit contains an ideal selection of basic tools for anyone getting involved in kit building, radio-TV repair or any related project. The 250DK is the same as 250K except voltage.

The 250K contains:

Weller:

WP-25 soldering iron and 2 extra tips Soldering aid tool 283g/10oz. Rosin core solder.

Xcelite:

4"/101mm long nose pliers

Diagonal cutter

Wire stripper

1"/6mm nutdriver

Slotted screwdriver

No. 1 Phillips head screwdriver

All in a convenient storage tray.

Cat.	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
250K	47536	25	110/130	60	6/2.72	6

Mini-Shop kits

The most versatile of power tools: clean-cut-drill-grind-polish-rout-sand-saw-shape-sharpen. Powered by 28,000 rpm 1 Amp. precision wound permanent magnet motor. Ideal for handymen, hobbyist and professionals. Small and easy to handle. Perfect for delicate work and hard to reach places. Flat flexible 3-wire cord.

601K and 651K



601K

46 piece kit, includes all accessories as listed below. Packed in convenient plastic carrying case and includes a booklet which illustrates use of each accessory.

Cat. No.	Description	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
601K	Complete kit	47545	120	120	50/60	8/3.63	3
601	Power unit only	47640	120	120	50/60	_	3

651K Variable speed kit

Identical to model 601K kit except that the power unit's output speed is adjustable by means of a continuously variable, solid-state control knob on the base of the unit, giving speeds from 5,000 RPM to 28,000 RPM. Permits user to match working speed to the requirements of the material being machined. Also included is high-speed steel engraving tip for permanent identification marking of most surfaces except hard steel and glass.

Cat. No.	Description	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
651K	Complete kit	47548	120	120	50/60	8/3.63	3
651	Power unit only	47641	120	120	50/60	_	3

Contents for 601K and 651K

Qt	у.	Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.
1	х	MS201	47475	1 x	MS211	47485	1 x	MS222	47496
1	х	MS202	47476	1 x	MS212	47486	1 x	MS223	47497
1	Х	MS203	47477	1 x	MS213	47487	1 x	MS224	47498
2	Х	MS204	47478	1 x	MS214	47488	1 x	MS225	47499
1	х	MS205	47479	1 x	MS215	47489	1 x	MS226	47500
6	х	MS206	47480	1 x	MS216	47490	1 x	MS227	47501
6	Х	MS207	47481	1 x	MS217	47491	1 x	MS228	47502
1	х	MS208	47482	1 x	MS219	47493	1 x	*MS232	47298
1	х	MS209	47483	1 x	MS220	47494	1 x	Owner's m	anual
6	х	MS210	47484	1 x	MS221	47495	1 x	Storage ca	se
* 1		1 1: 054	1/ 1						

^{*}Included in 651K only.

621K and 641K



621K

21 piece kit, includes all accessories as listed below. Packed in convenient plastic carrying case and includes a booklet which illustrates use of each accessory.

Cat.	Description	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
621K	Complete kit	47773	120	120	50/60	6/3.17	3
601	Power unit only	47640	120	120	50/60	_	3

641K Variable speed kit

Identical to model 621K kit except that the power unit's output speed is adjustable by means of a continuously variable, solid-state control knob on the base of the unit, giving speeds from 5,000 to 28,000 RPM. Permits the user to match working speed to the requirements of the material being machined.

Cat. No.	Description	N/S No.	W	V	Hz	Pack wt. lb/kg	Shelf Pack
641K	Complete kit	47734	120	120	50/60	_	3
651	Power unit only	47641	120	120	50/60	_	3

Contents for 621K and 641K

Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.
MS201	47475	1 x	MS208	47482	1 x	MS214	47488
MS203	47477	1 ×	MS209	47483	1 x	MS221	47495
MS206	47480	3 x	MS210	47484	1 x	MS223	47497
MS207	47481	1 x	MS212	47486	1 x	MS225	47499
MS226	47500	1 ×	MS228	47502			
	No. MS201 MS203 MS206 MS207	No. No. MS201 47475 MS203 47477 MS206 47480 MS207 47481	No. Otty. MS201 47475 1 x MS203 47477 1 x MS206 47480 3 x MS207 47481 1 x	No. No. Oty. No. MS201 47475 1 x MS208 MS203 47477 1 x MS209 MS206 47480 3 x MS210 MS207 47481 1 x MS212	No. No. Oty. No. No. MS201 47475 1 x MS208 47482 MS203 47477 1 x MS209 47483 MS206 47480 3 x MS210 47484 MS207 47481 1 x MS212 47486	No. No. Qty. No. No. Qty. MS201 47475 1 x MS208 47482 1 x MS203 47477 1 x MS209 47483 1 x MS206 47480 3 x MS210 47484 1 x MS207 47481 1 x MS212 47486 1 x	No. No. Qty. No. No. Qty. No. MS201 47475 1 x MS208 47482 1 x MS214 MS203 47477 1 x MS209 47483 1 x MS221 MS206 47480 3 x MS210 47484 1 x MS223 MS207 47481 1 x MS212 47486 1 x MS225

620K kit



14-piece kit, includes power unit 601 and accessories as listed below. Vacuum packed on handy hang-up card.

Cat.	Description	N/S No.	W	V	Hz	Pack wt.	Shelf Pack
620K	Complete kit	47546	120	120	50/60	11/5	3
601	Power unit only	47640	120	120	50/60		3

Contents for 620K

Qty.	Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.	Qty.	Cat. No.	N/S No.
1 x	MS201	47475	1 x	MS212	47486	1 x	MS223	47497
3 x	MS206	47480	1 x	MS214	47488	1 x	MS225	47499
3 x	MS207	47481	1 x	MS221	47495	1 x	MS228	47502

Mini-Shop accessories

	Cat. No.	N/S No.	Description Pa	elf ck		Cat. No.	N/S No.	Description Page	
	MS201	47475	Cup brush (bristle) 1 per card	3		MS217	47491	Adapter collet $\frac{3}{32}$ " /2.38mm 1 per card	3
	MS202	47476	Disc brush (bristle) 1 per card	3		MS218	47492	Mini-shop collet ½"/3.17mm 1 per card	3
	MS203	47477	Brush (wire) 1 per card	3		MS219	47493	Grinding wheel ¼" x½"/6.35mm x 12.7mm 1 per card	3
	MS204	47478	Drumsanderband Course 50 grit 6 per card	3		MS220	47494	Grinding wheel ½" x ½"/12.70mm x 9.52mm 1 per card	3
	MS205	47479	Drumsanderband Fine 120 grit 6 per card	3		MS221	47495	Grinding wheel 3" x 3"/19.05mm x 9.52mm 1 per card	3
	MS206	47480	Sanding disc Course 80 grit 12 per card	3		MS222	47496	Grinding wheel $\frac{3}{4}$ " $\times \frac{1}{8}$ " /19.05mm \times 3.17mm 1 per card	3
\odot	MS207	47481	Sanding disc Fine 120 grit 12 per card	3		MS223	47497	Grinding point ‡" x \{ \frac{1}{6} \] /6.35mm x 15.87mm 1 per card	3
	MS208	47482	Felt polishing wheel 6 per card	3	Maria substituti	MS224	47498	Grinding point §" x ¾"/9.52mm x 19.05mm 1 per card	3
	MS209	47483	Rubber abrasive wheel 2 per card	3		MS225	47499	Grinding point $\frac{1}{2}$ " x $\frac{3}{32}$ "/12.70mm x 2.38mm 1 per card	3
	MS210	47484	Cut off wheel 3 per card	3		MS226	47500	Dressing stone 1 per card	3
	MS211	47485	Expanding drum 1 per card	3		MS227	47501	Drill \frac{1}{2}"/3.17mm 1 per card	3
—— 0 — 0	MS212	47486	Mandrel 38mm/1½" 1 per card	3		MS228	47502	Wrench 1 per card	3
	MS213	47487	Cutter ball (\frac{1}{a}"/6.35mm dia.) 1 per card	3		MS229	47503	Safety goggles 1 per pack	1
	MS214	47488	Cutter cylinder (\frac{1}{4}"/6.35mm \times \frac{1}{2}"/12.70 long) 1 per card	3	10000000000000000000000000000000000000	MS231*	47504	Motor brushes 2 per card	3
	MS215	47489	Adapter collett $\frac{1}{3^2}$ "/0.79mm 1 per card	3	*	MS232*	47928	Engraving tip 1 per card	3
	MS216	47490	Adapter collett 18 / 18 / 18 / 18 / 18 / 18 / 18 / 18	3					

Mini-Shop Accessories kits



MS250 (47664) Polishing Kit

Contains 1 each: MS201, MS203, MS208, MS209, MS210.

MS251 (47665) Sanding kit

Contains 1 each: MS204, MS205, MS206, MS207, MS210.

MS252 (47666) Grinding kit

Contains 1 each: MS219, MS220, MS223, MS224, MS210

MS253 (47667) Cutting kit

Contains 1 each: MS213, MS214

Replacement and repair parts for all soldering irons

Cat.	N/S	Description	Shelf Pack
No.	No.	Bulb Screw-WC 100-Not "N" Guns	1
7333	47577 47223	Cord Set, Strain Relief WP/SP	1
CS2		Cord Set, Strain Relief W60/W100	1
CS3HB	47245	Cord Set, Strain Heller Wooy W 100 Cord Set, Strain Relief & Handle Asst. Kit W60-3,W100-3	1
CS4HB CS100HB	47256 47415	Cord Set w/Hdle	1
	47413	Fuse Line	1
HA1	47210	Handle: SP23,SP40,SP80	1
		Handle: W60-W100	1
HA 1B	47212	Handle/Cord Set Assy. 2 wire	1
HA1B2	47213	Heating Element, WP25	1
HE2	47237		1
HE4	47258	Heating Element, WP40	1
HE12	47363	Heating Element, TCP12	1
HE23	47367	Heating Element, SP23	1
HE24	47370	Heating Element, TCP24	1
HE40	47382	Heating Element, SP40	1
HE60DS	47788	Heating Element, DS102	1
HE80	47633	Heating Element, SP80	1
HE 175	47468	Heating Element, SP175	1
HEDS40	47383	Heating Element w/Barrel & Flange	1
HEW60	47398	Heating Element, W60	1
HEW 100	47419	Heating Element, W100	1
KN60	47399	Knurled Tip Nut, WP25/WP40	1
KN60A	47400	Knurled Tip Nut, W60	1
KN 100A	47418	Knurled tip Nut, W100	1
LN2	47238	Lamp Assy. WTCPL PU-2	1
MP126	47455	650° Soldering Pencil w/MP131 tip	1
MP127	47456	750° Soldering Pencil w/MP131 tip	1
MP201	47506	Transformer w/Terminals	10
MP202	47508	Sponge	1
MP210	47524	Barrel Nut Assy	5
MP213	47523	Funnel	1
MP214	47525	Iron Holder Assy.	1
MP303	47537	Iron Receptacle w/Control Circuit	1
MP304	47538	Switch w/Light	1
PUS	47204	Switch, PU2 Power Unit	1
RR40	47386	Retaining Ring	1
SD1	47219	Stand Topic Mico Distol Distol	1
SW60	47407	Switch AssyTCP1-TCP12-W60-DS101-DS102	1
SW100	47423	Switch Assy W100	1
TCP1	47222	Replacement Pencil	1
TC257	47639	Pkg. of 5 tips/PT-A7, PT-C7, PT-D7, PT-O7, PT-L7	1
VB40	47392	Vacuum Bulb	1
WC201	47507	Charger/WC 100	1
WC202	47510	Battery Pack/WC100	1
WC203	47514	Housing/WC 100	
WC205	47518	Tip Screws/WC100	1
WTCPK	47608	Insulated Transformer Non-Burnable Cord. Set Temperature Controlled.	1

Weller Modules

For use with the Cooper Tool Wall. For additional information regarding the Cooper module system see the last 2 pages of this catalog.

TW-40 (47699) Marksman soldering iron module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 9 lb/4.08 Kg. Contains: Two (2) Each SP23, SP40, SP80, Four (4) SP23K. TW40A (47700) Marksman Soldering Iron Assortment.

TW-42 (47703) Soldering Gun Module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 12 lb/5.44 Kg. Contains: Two (2) D550PK. TW-42A (47704) Soldering Gun Assortment.

TW-103 (47705) Soldering Gun Module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 26 lb/11.79 Kg. Contains: Three (3) Each 8200W, 8200PK, 7135, 6110. TW-103A (47706) Soldering Gun Assortment.

TW-104 (47707) Controlled Irons Module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each W60, W100, CT5A7, CT5C7, CT5E7, CT6D7, CT6E7, CT6F7. TW-104A (47708) Controlled Irons

Assortment.

TW-105 (47709) Iron Module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 15 lb/6.80 Kg. Contains: Three (3) Each SP23, SP40, SP80, SP23K, WP25, WP40, MT1, MT2, MT3, MT10, MT20, ST1, ST2, ST3. TW-105A (47710) Iron Assortment.

TW-201 (47744) Hobby Iron Module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 11 lb/4.99 Kg. Contains: Two (2) Each W100, GT7A, SP40, SP80, SPG80. TW-201 A (47753) Hobby Iron Assortment.

TW-202 (47745) Hobby Tips and Accessories Module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 5 lb/2.27 Kg. Contains: Two (2) 7A, Three (3) CT6E7, CT6F7, MT10, MTG20, MTG21. TW-202A (47754) Hobby Tips and Accessories Assortment.

TW-203 (47785) Mini-Shop Module



Size: 16"/400mm x 29"/740mm (A). Shipping weight: 13 lb/5.90 Kg. Contains: Two (2) Each 620K, MS250, MS251, MS252, MS253, MS202, MS203, MS222, MS216, MS211, MS212, MS215, MS232, MS217, MS226. TW-203A (47795) Mini-Shop Assortment.

TW-209 (47786) Mini-Shop Module



Size: 16"/400mm x 13"/330 mm (C). Shipping weight: 7 lb/3.17 Kg. Contains: Two (2) 621K. TW-209A (47799) Mini-Shop Assortment.

TW-210 (47787) Mini-Shop Module



Size: 16"/400mm x 13"/330mm (C). Shipping weight: 7 lb/3.17 Kg. Contains: Two (2) 641K. TW-210A (47792) Mini-Shop Assortment.

MD12 (47364) Marksman Soldering Irons Display



Size: 19½"/50mm x 8"/20mm Shipping weight: 8 lb/3.62Kg. Contains: Three (3) Each SP23K, SP23, SP40, SP80.

RT48 (47393) Soldering Gun Tip Merchandiser



Size: 14½"/370mm x 14"/355mm Shipping weight: 5 lb/2.27 Kg. Contains: Twelve (12) Each 7135, 7250, Six (6) Each 7135N, 6110, 6120, 6130, 6140, 7250N.

MS108 (47635) Mini-Shop Accessories



Size: 25"/635mm x 17"/432mm Shipping weight: 11 lb/5 Kg. Contains: Three (3) Each MS201, MS202, MS203, MS206, MS207, MS209, MS211, MS212, MS215, MS216, MS217, MS218, MS219, MS220, MS221, MS222, MS223, MS224, MS225, MS226, MS227, MS228, MS231, MS232. Six (6) Each MS204, MS205, MS208, MS210, MS213, MS214.

TW-320 (EXPORT) Marksman soldering iron module

Size: 16"/400mm x 29"/740mm (A). Shipping weight: 9 lb/4.0 Kg. Contains: Two (2) Each SP25D, SP40D, SP80D, Four (4) Each SP25DK. TW320A Marksman Soldering Iron Assortment.

TW-322 (EXPORT) Soldering gun module

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 12lb/5.44 Kg. Contains: Two (2) 8250DPK. TW-322A Soldering Gun Assortment.

TW-323 (EXPORT) Soldering gun module

Size: 16"/400mm x 29"/740mm (A). Shipping weight: 26 lb/11.79 Kg. Contains: Three (3) Each 8200D, 8200DPK, 7135, 6110. TW-323A Soldering Gun Assortment.

TW-324 (EXPORT) Controlled irons module

Size: 16"/400mm x 13"/330mm (C). Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each W60D, W100D, CT5A7, CT5C7, CT5E7, CT6D7, CT6E7, CT6F7. TW-324A Controlled Irons Assortment.

TW-325 (EXPORT) Iron module

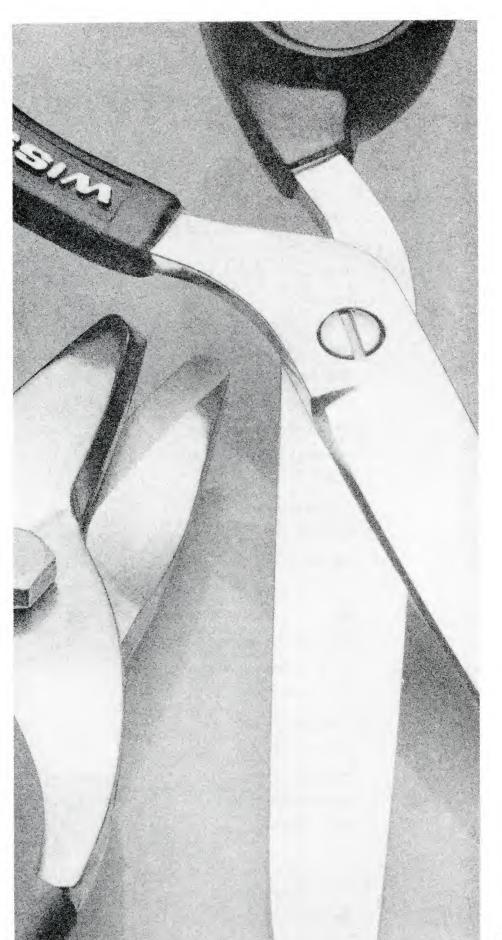
Shipping weight: 15 lb/6.80 Kg. Contains: Three (3) Each SP25D, SP40D SP80D, SP25DK, WP25D, WP40D, MT1, MT2, MT3, MT10, ST1, ST2, ST3, MT20.

Size: 16"/400mm x 29"/740mm (A).

TW-325A Iron Module Assortment.

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250N		WE 14	DS220	WE6	MP2 14	WE22	PTC8	WE3	TC2092	WE
323		WE14	DS225	WE6	MP303	WE22	PTD6	WE3	TC210	WE
324		WE 14	DS500	WE5. WE6	MP304	WE22	PTDD6	WE3	TC257	WE2, WE2
325		WE 14	DS501	WE5	MS108	WE24	PTDD6	WE3	TC369A	WE WE
333	1	WE22	DS502	WE5	MS201	WE 19, WE20,	PTDD7	WE3	TCP1	WE2
409		WE 14	DS503	WE5		WE21, WE24	PTD8	WE3	TCP12	WE1
412.		WE14	DS504	WE5	MS202 V	VE 19, WE 21, WE 24	PTDD8	WE3	TCP24	WE1
417		WE14	DS600	WE5, WE6	MS203	WE19, WE20.		WE3	TW-40	WE2
100-RH		WE14	DS601	WE5		WE21, WE24	PTE6 PTE7	WE3	TW-40A	WE2
1125		WE14	DS602	WE5	MS204 W	E 19, WE21, WE24		WE3	TW-42	WE2
125N		WE14	DSF40	WE10		E19, WE21, WE24	PTE8 PTF6	WE3	TW-42A	WE2
200	WE12, 1	WE14	DSF40-3	WE10	MS206	WE 19, WE 20,	PTF7		TW-103	WE2
200-3		WE12	DSH40	WE 10		WE21, WE24	PTF8	WE3	TW-103A	
200D	1	WE12	DST1	WE10				WE3	TW-104	WE2
200DPK	1	WE12	DST2	WE 10			PTH6	WE3 WE3	TW-104A	
200PK	WE12, \	NE23	DST3	WE 10	MS207	WE19. WE20.	PTH7 PTH8	WE3	TW-105	WE23
200-RH	1	WE14	DST4	WE 10		WE21. WE24	PTK6	WE3	TW-105A	
200W	WE12, \	NE23	DST5	WE 10	MS208	WE19, WE20,	PTK7	WE3	TW-201	WE23
250D		WE12	DST6	WE 10		WE21, WE24	PTK8	WE3	TW-201A	
250DPK		WE13	DSTCP	WE2, WE3, WE10	MS209	WE19, WE20,	PTL6	WE3	TW-202	WE24
200K	WE13, 1	WE14	EC205	WE 1		WE21, WE24	PTL7	WE3	TW-202A	
C40		WE11	EC208	WE 1	MS210	WE19, WE20,	PTL8	WE3	TW-203	WE24
C303P		WE11	EC210	WE 1		WE21, WE24	PTM6	WE3	TW-203A	
A60	WE 1,		EC211	WE1		VE 19. WE21, WE24	PTM7	WE3	TW-209	WE24
S2		NE22	EC212	WE 1	MS212	WE19, WE20	PTM8	WE3	TW-209A	
S3HB		NE22	EC213	WE 1		WE21, WE24	PTO6	WE3	TW-210	WE24
S4HB		NE22	EC219	WE1. WE2		E 19. WE21, WE24	PTO7	WE3	TW-210A	WE24
S100HB	\	NE22	EC220	WE1, WE2	MS214	WE 19, WE 20.	PTO8	WE3	TW320	WE25
T5A6		WE7	EC1000	WE 1		WE21, WE24	PTP6	WE3	TW320A	WE25
	7. WE23. \		EC1000D	WE 1		E 19, WE 21, WE 24	PTP7	WE3	TW322	WE25
T5A8		WE7	EC1002A	WE 1		E19. WE21, WE24	PTP8	WE3	TW322A	WE2
T5B6		WE7	EC1201A	WE 1		E 19. WE21, WE24	PTR6	WE3	TW323	WE2
T5B7		WE7	EC2000	WE 1	MS218	WE21, WE24 E19, WE21, WE24	PTR7	WE3	TW323A	
T5B8		WE7	EC2000D	WE 1 WE 1		E 19, WE21, WE24 E 19, WE21, WE24	PTR8	WE3	TW324	WE2
T5C6	7.14/505	WE7	EC2002A ETA	WE2	MS221	WE 19, WE 20.	PTS6	WE3	TW324A	WE2
	7. WE23. \	WE24 WE7	ETB	WE2	11022	WE21. WE24	PTS7	WE3	TW325	WE2
T5C8		WE7	ETC	WE2	MS222 W	E 19. WE21, WE24	PTS8	WE3	TW325A	WE2
T5D6 T5D7		WE7 WE7	ETCC	WE2	MS223	WE 19, WE 20,	PUC20	WE14	VB40	WE2
T5D7		WE7	ETD	WE2	1410550	WE21, WE24	PUC50	WE 14	W60	WE7, WE10
1508 T5E6		WE7	ETDD	WE2	MS224 W	E 19, WE21, WE24	PUS	WE22		WE23, WE
	WE7, V		ETH	WE2	MS225	WE19, WE20,	RC40	WE11	W60-3	WE
T5E7	vv⊏/, V	WE7	ETK	WE2	1110220	WE21, WE24	RC60	WE11	W100	WE7, WE8, WE2
T5E8		WE7	ETL	WE2	MS226	WE19. WE20	RR40	WE22	W100-3	WE.
T6C6	7. WE23.1		ETM	WE2	1413220	WE21, WE24	RT48	WE24	WC111	WE
T6C7 WE7 T6C8	/, VV⊏∠3, \	WE7	ETO	WE2	MC227 14	E 19, WE21, WE24	SD1	WE22	WC112	WE
T6D6		WE7	ETP	WE2	MS228	WE 19, WE 20.	SF60	WE8	WC113	WE
T6D7	WE7. 1		ETR	WE2	1113220	WE21, WE24			WC114	WE
T6D7	VV⊏7,	WE7	ETS	WE2	MS229	WE21, WE24	SFA1	WE 10	WC201	WE2
T6E6		WE7	FPI	WE22	MS231	WE21, WE24	SFA60	WE8	WC202	WE2
T6E7	WE7, V		GT	WE11		E 19, WE 21, WE 24	SFA 100	WE8	WC203	WE2
	WE24. \		GT3	WE11	MS250	WE21, WE24	SFW60	WE8	WC205	WE2
TOL 7	VVC24, \	WE7	GT6B	WE11	MS251	WE21, WE24	SFW100	WE8	WM120	WE-
		WE7	GT6B-3	WE11	MS252	WE21, WE24	SP23	WE15, WE16		WE9, WE10, WE1
T6E8	WE7. V		GT7A	WE11, WE23	MS253	WE21, WE24		WE17, WE23	WP25-3	WE
T6E8 T6F6					MT1	WE 16, WE 17,	SP23HK	WE17	WP25D	WE9, WE2
T6E8 T6F6			GT7A-3	WE11 WE22	1411 [WE23. WE25	SP23K	WE16, WE23		WE9, WE10, WE2
T6E8 T6F6 T6F7	WE24.	W/F7							WP40D	WE2
T6E8 T6F6 T6F7	WE24. \	WE7	HA1		NATO 144	E 16 \A/E22 \A/E2E	SPERMIC	VVF17		
T6E8 T6F6 T6F7 T6F8 440-RH	WE24. \	WE 14	HA1B	WE22		E16, WE23, WE25	SP23MS SP23WB	WE17	WP40-3	WES
T6E8 T6F6 T6F7 T6F8 440-RH 550 WE12	WE24. \ \ 2. WE13, \	NE 14 NE 14	HA1B HA1B2	WE22 WE22	MT3 W	E 16, WE23, WE25	SP23WB	WE 17	WP40-3 WTCPK	WE22
T6E8 T6F6 T6F7 T6F8 440-RH 550 WE12	WE24. \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	NE 14 NE 14 NE 12	HA1B HA1B2 HE2	WE22 WE22 WE22	MT3 W MT5	E 16, WE23, WE25 WE16	SP23WB SP25D	WE17 WE15, WE25	WP40-3 WTCPK WTCPN	WE22 WE22
T6E8 T6F6 T6F7 T6F8 440-RH 550 WE12	WE24. \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	NE 14 NE 14 NE 12	HA1B HA1B2	WE22 WE22	MT3 W	E 16, WE23, WE25	SP23WB	WE 17	WP40-3 WTCPK	WE9 WE22 WE2 WE2 WE2



CooperTools

Wiss

Since 1848, Wiss has manufactured a quality line of cutting tools. Wiss scissors and shears are extremely popular in the garment and dressmaking field and are found in household sewing baskets everywhere. Snips are utilized for industrial cutting and DIY applications, and the Metalmaster range of compound action snips have become a favorite with metal-working craftsmen.

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overall length	
Length of cut	

Note:

N/S No. is an abbreviation for NIDA/SIDA Number.

W is an abbreviation for Wiss Scissors and Shears. WS is an abbreviation for Wiss Snips.



The Wiss line of Metalmaster* compound action snips is the most complete line on the market. Metalmasters are one of the most advanced metal cutting tools available today.

Originally developed for cutting the extremely tough alloys used in the aircraft industry (hence the nickname Aviation Snips), Metalmasters have become the favorite of most craftsmen who work with metal.

Wiss Metalmaster snips are widely used by home craftsmen and professional metal workers in gutter and flashing work, fabrication of heating and cooling ducts and for aluminum siding installation. Wiss Metalmasters are indispensable to homeowners and maintenance specialists and to industrial workers in the appliance, aircraft, automotive, electrical and construction industries. It is the versatility of Wiss Metalmasters, in addition to their superior cutting qualities, that has made them so popular.

Wiss Metalmasters cut with half the effort required of conventional snips and handle even the biggest jobs. They cut acute angles, complex patterns and perfect circles of even small diameter in galvanized steel up to 18 gauge (.044"). The M5R is recommended for 16 gauge (.065").

The jaws of Wiss Metalmaster snips are hot drop-forged of extra tough and wear-resistant special molybdenum steel to provide the extra service demanded by the compound lever action and to withstand the severe strain of cutting heavy stock or tight curves. The M-41R Pipe and Duct Snips have been specifically developed for the heating and air conditioning industry. They also feature the compound lever action, but have in addition a ball bearing jaw action that automatically adjusts the blade clearance to ensure a squarer, cleaner cut. They cut flat sheet metal without distortion to cut edges.

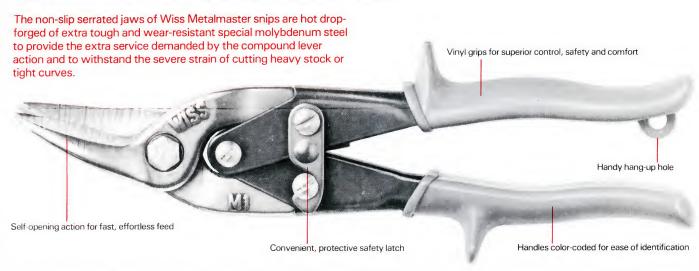
Wiss also manufactures a comprehensive range of tinner's snips. These are available in a variety of patterns which enable cuts to be made right, left or straight. They are hot drop-forged and have polished jaws for smooth action, combined with cleaner cutting.

Snips Selection Chart

To find the proper snips for your requirements, check the chart below. Simply find your requirements in the listing. The applicable snips are indicated in the chart.

	Metalmaster M-1R, M-2R and M-3R	M-41R	Tinner's Snips A and V Series	MPC-3	BX-N	Metalmaster M-5R	Metalmaster Special Series M1R-S1 and M2R-S1	Industrial Snips W Series
Do-it-Yourselfer	•	•	•	•	•			
Roofer	•							•
Mechanic	•		•					•
Autobody Worker	•							•
Plumber	•							•
Heating and Cooling Specialist	•	•						•
Electrician	•		•		•			•
Vocational Teacher	•	•	•			•		•
Maintenance worker	•		•					•
WISS SNIPS FOR SPECIAL JOBS								
Notching and Nibbling Heavy Stock						•		•
Cutting Curves	•						•	
Double Cut-Snips		•						
Cutting Titanium Inconel, Inconel X, and Stainless Steel							•	

Metalmaster® compound action snips



Metalmaster® compound action snips M-1R



M-1R cuts left from tight curves to straight.

Cat. No.	N/S No.	← "/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M-1R Red Grips	58012	93/248	13/35	18 Gauge Steel (0.049"/1.22mm)	84/2381	6

M-2R



M-2R cuts right from tight curves to straight.

Cat. No.	N/S No.	← · → " /mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M-2R Green Grips	58018	93/248	$1\tfrac{3}{8}/35$	18 Gauge Steel (0.049"/1.22mm)	84/2381	6
M-2 (5801	7) is same	without gr	ips.			

M-3R



M-3R cuts straight (or wide curves left or right in light stock). Accomplishes most metal cutting requirements of the home craftsman.

Cat. No.	N/S No.	←┖→ ″/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M-3R Yellow G	58021 rips	93/248	1½/38	18 Gauge Steel (0.049" /1.22mm)	84/2381	6
M-3 (580	020) is same	without gr	ips.			

Metalmaster® special series snips



Metalmaster special series snips are specially hardened for unusual industrial requirements such as cutting today's space age metals, like Inconel, stainless steel and Titanium. M1R-SI cuts left. M2R-SI cuts right.

Cat.	N/S No.	← L → "/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M1R-S1 Blue Grips		93/248	13/35	18 Gauge Stainless Steel (0.049"/1.22mm)	120/3402	6
M2R-S1 Blue Grips		93/248	13/35	18 Gauge Stainless Steel (0.049"/1.22mm)	120/3402	6

Metalmaster® compound action bulldog snips



M-5R for notching or trimming extra heavy stock.

Cat. No.	N/S No.	←-L→ "/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M-5R Red Grips	58025	93/233	7/22	16 Gauge steel (0.65" /1.65mm)	70/1985	6

Metalmaster® compound action pipe and duct snips



M-41R cuts straight, curves and any combination. The M-41R is formed of high carbon tool steel. The handles are formed of special high strength steel and have a margin of strength far above the limit of the hand power that can be exerted.

M-41R is widely used in the heating and air conditioning industry as a pipe and duct snip. It is popular for cutting many rigid non-metallic sheet materials such as fiberglass panels, decorative plastic kitchen laminates*, synthetic shingles, flooring materials and lots more. Wiss Metalmaster M-41R features a patented ball-bearing jaw action that automatically adjusts blade clearance for squarer cleaner cuts.

*When cutting laminates, the finished surface should be on the side of the center blade to avoid excessive cracking.

Cat.	N/S No.	← "/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
M-41R Yellow G	58069 rips	8½/233	9/14	20 Gauge Steel (0.035" /0.89mm)	73/2084	1

Metal-Wizz® Multi-purpose snips



The MPC-3 is a home craftsman's cutting tool for countless uses. It is often used for many jobs for which a layman has traditionally used his tinner's snips, such as cutting screening and hardware cloth, light gauge sheet metal, synthetic shingles, tile gutters and downspouts, carpeting and much more. It boasts many of the labor-saving features found in Metalmaster snips, such as compound action, serrated jaws, safety latch and yellow vinyl comfort grips.

Cat.	N/S No.	← "/rnm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
MPC-3	58022	9/229	1흫/35	20 Gauge Steel (0.035"/0.89mm)	72/2041	6

Solid Steel Tinner's snips

These are traditional tools of the sheet metal trades, popular in schools and with the home craftsman. Wiss Tinner's snips are available in both straight pattern and in duckbill combination Smooth, comfortable bows pattern. A complete selection of sizes is available in both patterns. for ease in use Wiss Tinner's snips are hot drop-forged of the finest tool steel and and safety are skillfully crafted. Individually hand edged for maximum cutting Polished jaws for efficiency and life. smoother action and cleaner cut. (DROP FORGED) Finest quality steel hot drop-forged for a sharp edge and long snips life. Wiss branded - signifying Light grey enamelled handles for reduced the finest quality maintenance. available.

Straight pattern snips



Straight pattern snips are primarily for straight cuts, although they will cut wide curves when trimming light stock. The inside edge of the blade face is flat and tends to guide the tool along a straight line. This most traditional of tinner's snips is still widely used in the plumbing, heating, air conditioning and roofing trades, as well as being a nearly universal home handyman's tool.

N/S No.	←	☆ < "/mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
58049	7/178	13/44	23 Gauge (0.025"/0.63mm)	36/1021	6
58048	8/209	2/51	23 Gauge (0.025"/0.63mm)	48/1361	6
58045	10/248	21/57	23 Gauge (0.025"/0.63mm)	84/2381	6
58042	11/279	2½/63	21 Gauge (0.032"/0.81mm)	120/3402	6
58039	12½/317	3/76	20 Gauge (0.035"/0.89mm)	168/4763	6
	No. 58049 58048 58045 58042	N/S No. "/mm 58049 7/178 58048 8/209 58045 10/248 58042 11/279	N/S No. "/mm "/mm 58049 7/178 1¾/44 58048 8/209 2/51 58045 10/248 2¼/57 58042 11/279 2½/63	N/S No. "/mm "/mm capacity low carbon cold rolled steel 58049 7/178 1¾/44 23 Gauge (0.025"/0.63mm) 58048 8/209 2/51 23 Gauge (0.025"/0.63mm) 58045 10/248 2¼/57 23 Gauge (0.025"/0.63mm) 58042 11/279 2½/63 21 Gauge (0.032"/0.81mm) 58039 12⅓/317 3/76 20 Gauge	N/S No. "/mm "/mm capacity low carbon cold rolled steel oz/g 58049 7/178 1⅓/44 23 Gauge (0.025"/0.63mm) 58048 8/209 2/51 23 Gauge (0.025"/0.63mm) 58045 10/248 2⅓/57 23 Gauge (0.025"/0.63mm) 58042 11/279 2⅓/63 21 Gauge (0.032"/0.81mm) 58039 12⅓/317 3/76 20 Gauge 168/4763

Duckbill combination pattern snips



Duckbill pattern snips feature the advantage of cutting moderately tight curves to the left or right in light stock as well as cutting straight. Duckbill snips are very popular with the home craftsman and with professional artisans for light duty metal cutting because of their great versatility.

Cat.	N/S No.	← - → "/mm	"/mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
V-13	58050	7/178	13/44	23 Gauge (0.025"/0.63mm)	6/170	6
V-10	58043	10/260	21/57	23 Gauge (0.025"/0.63mm)	84/2381	6
V-19	58051	13/330	3/76	21 Gauge (0.032" /0.81mm)	168/4763	6

INLAID* Industrial Snips

Wiss Industrial Snips are widely used industrially and have for years set the professional standard for incomparable ruggedness, durability and efficiency.

The superior cutting properties and durability are produced by a special process that offers extraordinary edge properties for high performance.

Straight pattern



Straight pattern snips are primarily for straight cuts although they will cut wide curves when trimming light gauge stock. The inside face of the blade is flat which tends to guide the tool along a straight cut.

N/S No.	← "/mm	//mm	Recommended max. capacity low carbon cold rolled steel	oz/g	Shelf Pack
58044	11½/280	2½/63	21 Gauge (0.032"/0.81mm)	22/624	1
58041	12½/317	3/76	20 Gauge (0.035" /0.89mm)	28/794	1
58038	13½/343	3½/89	19 Gauge (0.042"/1.07mm)	38/1021	1
58035	14½/368	4/100	18 Gauge (0.049"/1.22mm)	42/1191	1
	No. 58044 58041 58038	N/S No. "/mm 58044 11½/280 58041 12½/317 58038 13½/343	No. "/mm "/mm 58044 11½/280 2½/63 58041 12½/317 3/76 58038 13½/343 3½/89	N/S No. "/mm "/mm capacity low carbon cold rolled steel 58044 11½/280 2½/63 21 Gauge (0.032"/0.81mm) 58041 12½/317 3/76 20 Gauge (0.035"/0.89mm) 58038 13½/343 3½/89 19 Gauge (0.042"/1.07mm) 58035 14⅓/368 4/100 18 Gauge	N/S No. "/mm "/mm capacity low carbon cold rolled steel oz/g 58044 11½/280 2½/63 21 Gauge (0.032"/0.81mm) 58041 12½/317 3/76 20 Gauge (0.035"/0.89mm) 58038 13½/343 3½/89 19 Gauge (0.042"/1.07mm) 58035 14½/368 4/100 18 Gauge 42/1191

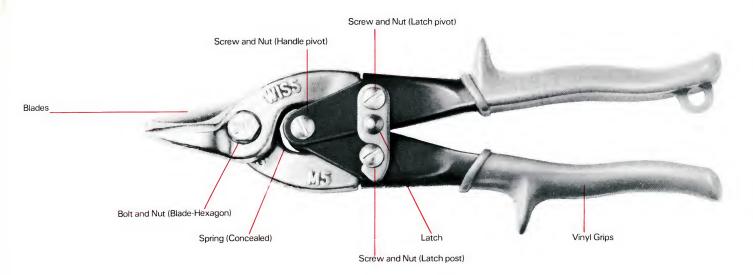
Bulldog pattern



Bulldog snips provide greater cutting power for notching, nibbling and chopping heavy stock.

Cat.			Recommended max. capacity low carbon cold rolled steel oz/g		Shelf Pack	
W5	58028	16½/419	2½/63	16 Gauge (0.065"/1.65mm)	58/1644	1

Repair parts for snips and industrial cutting tools



Pair

Pair

Pair

Pair

Metalmaster snips						
Cat.	Description	Shelf Pack				
P400	Replacement Bolt & Nut (Blade Hexagon) for all Metalmaster Series Snips	10				
P401	Replacement Screw & Nut (Handle Pivot) for all Metalmaster Series Snips	10				
P402	Replacement Screw & Nut (Latch Pivot) for all Metalmaster Series Snips	10				
P403	Replacement Screw & Nut (Latch Post) for all Metalmaster Series Snips	10				
P404	Replacement Latch for M-1R, M-3R, M-5R	10				
P405	Replacement Latch for M-2R	10				
P406	Replacement Spring for M-1R, M-3R, M-5R	10				
P407	Replacement Spring for M-2R, M-5R	10				
P408	Replacement Blades (without Bolt) for M-1R	Pair				

Replacement **Blades** (without Bolt) for M-2R

Replacement Blades (without Bolt) for M-3R

Replacement Blades (without Bolt) for M-5R

Replacement Blades (without Bolt) for M1R-SI

Replacement Blades (without Bolt) for M2R-SI

Tinner's s	nips	
Cat. No	Description	Shelf Pack
P415	Replacement Bolt & Nut for A-12, A-13	10
P416	Replacement Bolt & Nut for A-11	10
P417	Replacement Bolt & Nut for A-10	10
P418	Replacement Bolt & Nut for A-9	10
P419	Replacement Bolt & Nut for V-13	10
P420	Replacement Bolt & Nut for V-19	10
P421	Replacement Bolt & Nut for V-10	10

P409 P410

P411

P425 P426

Special Purpose industrial snips and shears

These Wiss hot drop-forged, light metal snips and shears are compact, easy to use, and popular in the electronics and appliance industries. They are also used extensively in crafts. The specially designed handles permit powerful pliers grip with easy opening and closing for fast, accurate operation.

Light metal-cutting snips - solid steel



J-7 and J-7S solid forged light metal snips are compact, handy snips popular in the electronics and appliance industries. Polished curved and straight blades. Black handles.

Cat. No.	N/S No.	← "/mm	//mm	oz/g	Shelf Pack
J-7 Curved bl	58032 ades	7/178	11/32	28/794	6
J-7S Straight b	58033 lades	7/178	11/32	28/794	6

Cable or BX cutters - solid steel



Hot drop-forged. Polished blades with stripping notch for insulated wire. Black handles fitted with red vinyl grips.

Cat.	N/S No.	←┖→ "/mm	//mm	oz/g	Shelf Pack
BX-N	58001	7/181	3 /19	46/1304	6

Electronics and filament scissors - solid steel



Hot drop-forged. Polished blades with black handles. Coil spring in handle opens blades after each cut.

Cat.	N/S No.	 "/mm	//mm	oz/g	Shelf Pack
605 Straight Bl	58111 lades	47/127	₹/19	20/567	6
625 Curved Bla	58112 ades	4 2/127	³ /19	20/567	6

Belt and leather cutting shears — <u>INLAID</u>* blades



Hot drop-forged commercial finished blades; one blade serrated. Patented SET EASY* pivot. Black handles.

Cat.	N/S No.	←-L-→ "/mm	"/mm	oz/g	Shelf Pack
8-BLT	58036	8/222	3/72	64/1814	6

Rug shears for hooked and candlewick rugs - solid steel



Hot drop-forged. Nickel plated blades. Offset black handles. Double sharp points.

Cat.	N/S No.	←L→ "/mm	//mm	oz/g	Shelf Pack
RS-1	58014	71/204	23/70	28/794	6

Poultry, auto body and florist shears — <u>INLAID</u>* blades



Hot drop-forged. Nickel plated blades and handles; commercial finish. Patented SET EASY $^{\tiny{\circledR}}$ pivot.

Cat.	N/S No.	←┖→ "/mm	//mm	oz/g	Shelf Pack
1-DS	58010	8/216	3/76	40/1134	6

Poultry processing - solid steel



Hot drop-forged. Special ball point for poultry processing. Fully nickel plated blades and handles. Commercial finish. Adjustable nut.

Cat.	N/S No.	← └→ "/mm	//mm	oz/g	Shelf Pack
41DB	58068	8/222	27/73	46/1304	6

High leverage shears – solid steel



Hot drop-forged. Serrated blades. Commercial finish. Black handles.

Used extensively for wire cutting by florists and dentists.

Cat.	N/S No.	⊷∟→ ″/mm	//mm	oz/g	Shelf Pack
2-DA	58016	8/210	21/57	54/1531	6

Anvil blade cutter - solid steel



Brass anvil. Hot formed molybdenum steel. Fully nickel plated with pistol grips. Closing latch. Individually bulk packaged.

Cat.	N/S No.	← "/mm	//mm	oz/g	Shelf Pack
908W	58258	8/204	1 1 /38	312/8845	6

Replacement parts available; see page 19

Grape thinning, industrial trimming and orchid shears - solid steel



Hot drop-forged. Heavy pattern. Curved polished blades. Black handles. Closing latch. Adjustable nut. Coil spring in handle opens blades after each cut.

Cat.	N/S No.	←↓→ "/mm	//mm	oz/g	Shelf Pack
C-4A Curved pol	58023 ished blades	8/204	21/57	34/964	6
C-4AS Straight po	58024 dished blades	8/204	21/57	32/907	6

Citrus fruit clippers - solid steel



Hot drop-forged. Curved polished blades. Rounded points for bruise-free fruit picking. Black handles. Closing latch. Adjustable nut. Coil spring in handle opens blades after each cut.

Cat.	N/S No.	←-L→ "/mm	″/mm	oz/g	Shelf Pack
C-1	58009	6 1 /165	1½/38	28/794	6

Pocket and safety point scissors



Hot drop-forged. Fully nickel plated. Flat pattern. Double blunt points. Ring handles.

Cat.	N/S	← L→	3		Shelf
No.	No.	"/mm	"/mm	oz/g	Pack
064	58070	4/100	13/44	8/227	6
065	58071	5/127	21/58	12/340	6
166	58079	6/152	23/70	20/567	6

Industrial pocket scissors



Stamped from high quality carbon steel. Nickel plated. Blunt points. Red plastic coated ring handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
1514	58124	4/100	1½/38	8/227	6

Industrial thread clips Wiss clips – solid steel



Quality hot drop-forged cutlery steel. Self-opening spring action assures fast, effortless cutting. Ideal for cutting thread, ribbon, paper, etc. Fully nickel plated.

Cat.	N/S No.	←└→ "/mm	i∰	∆⁺∆ oz/g	Shelf Pack
TC-1 Sharp points.	58015	4 ₈ /117	1/26	16/454	6
TC-5 Blunt points.	58027	4 5 /117	1/26	16/454	6

Quick-clip® speed cutters



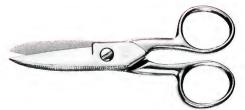
Quick-clip® speed cutters with stainless steel replaceable blades. Positive spring action re-opens blade for fast cutting. Heavy-duty contour designed blue frames.

Cat. No.	N/S No.	←┖→ "/mm	″/mm	oz/g	Shelf Pack
1570B Sharp points	58126	43/121	1/26	10/284	6
1571B Blunt points	58127	43/121	1/26	10/284	6

Replacement parts available; see page 19.

Electrician's scissors - solid steel

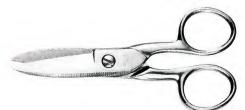
175-E



Hot drop-forged. Fully nickel plated. Scraper and file on back edge of blade. Standard Wiss finish. Polished sharp points.

Cat.	N/S No.	← - → "/mm	//mm	oz/g	Shelf Pack
175-E	58080	5/133	17/48	14/397	6

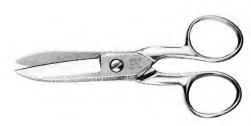
175-E3



Same as 175-E but with commercial finish. One blade serrated $1^{\prime\prime}$ back from point.

Cat.	N/S No.	←┖→ "/mm	"/mm	oz/g	Shelf Pack
175-E3	58081	5/133	17/48	14/397	6

175-E5



Hot drop-forged. Fully nickel plated. Commercial finish. Double stripping notch for 19 gauge (.035) and 23 gauge (.022) wire. Scraper and file on back edge of blade. Available in Hang-up vinyl pack order No. 175-E5V.

Cat.	N/S No.	←↓→ "/mm	//mm	oz/g	Shelf Pack
175-E5	58082	5/133	17/48	16/454	6
175-E5V	58218	5/133	17/48	16/454	6

Shears and Scissors

As with other products, the manufacture of shears and scissors begins with the finest quality cutlery steel and depends on the extensive knowledge of metallurgy, the dedication and experience of skilled craftsmen, and the implementation of the strictest quality control procedures have established Wiss shears and scissors as the standard of excellence in the industry. Many progressive and innovative developments—Quick-Clip * Speed Cutters, Serrated Blade Shears, Contura-Lite * premium Lightweight Shears and the new lightweight Wissper-Lite series—have helped to ensure that all Wiss customers are provided with cutting tools that will cut easier, quicker, better and help do a more professional job ... every time.

Wiss shears and scissors receive the same attention to detail and quality given to the world-famous range of metal cutting snips. Knife-edge blades ensure an easy cut that helps the blades cut right down to the tip of the point. Products especially designed for particular uses ensure effortless cutting; Needlecraft Scissors, Thread Clips and the wide range of Pinking and Skalloping Shears have been created to meet many requirements including those brought about by the extensive use of modern man made materials.

Wiss INLAID® trimmers

These are the finest quality shears you can buy. A result of Wiss research, these shears have been precision engineered by American craftsmen to give you longer cutting life, maximum cutting edge hardness, durability and improved design. INLAID® shears will remain on the job longer and will effectively give you more cuts per dollar.

Wiss INLAID® trimmers feature nickel plating, perfect adjustment and the patented Wiss SET-EASY® pivot which enables adjustment of the run of the shears to fit individual preference.



WISS-INLADOSA

Bent trimmers

Professional Dressmaker's and industrial shears



Hot drop-forged. Nickel plated blades. Patented SET-EASY® pivot. Black handles.

Cat.	N/S		≅ <		Shelf
No.	No.	"/mm	"/mm	oz/g	Pack
27	58057	7/178	3½/79	18/510	6
28	58058	8/200	33/95	34/964	6
29	58059	9/228	4/100	46/1304	6

Heavy duty industrial shears



Hot drop-forged. Polished blades. Patented SET-EASY® pivot. Black handles.

Cat.	N/S No.	←-L→ "/mm	"/mm	oz/g	Shelf Pack
20	58052	10/250	43/121	70/1985	6
22	58055	12/300	6½/155	108/3062	6

Left hand model

INLAID*



Hot drop-forged. Polished blades. Patented SET-EASY® pivot. Black handles.

Cat.	N/S No.	← "/mm	/mm	oz/g	Shelf Pack
20LH	58053	10/254	43/121	78/2211	6

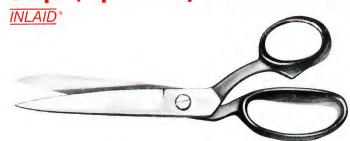
Upholstery, carpet and drapery shears



Hot drop-forged. Heavy duty raised blade. Polished blades. Patented SET-EASY* pivot. Black handles.

Cat.	N/S No.	← L → "/mm	//mm	oz/g	Shelf Pack
20-W	58054	10/254	43/121	84/2381	6
22-W	58056	12/305	61/155	124/3515	6

Carpet, upholstery and fabric shears (knife-edge*)



Hot drop-forged. Polished blades. Patented SET-EASY® pivot. Dark blue handles.

Cat.	N/S No.	← "/mm	//mm	oz/g	Shelf Pack
1225	58121	10/254	43/121	68/1928	6
1226	58122	12/305	6½/155	104/2948	6

*One blade is ground to a knife-edge for faster, cleaner, easier cutting of today's synthetic fibers.

Straight trimmers



Hot drop-forged. Nickel plated blades. Patented SET-EASY® pivot. Black handles.

Cat. No.	N/S No.	← - → "/mm	//mm	oz/g	Shelf Pack
36	58062	6/152	2 1/66	18/510	6
37	58064	7/178	31/79	24/680	6
38	58066	8/203	33/95	34/964	6

Industrial and professional shears



Hot drop-forged. Nickel plated blades. Patented SET-EASY * pivot. Black handles.

Cat.	N/S No.	←-⊾ ″/mm	//mm	oz/g	Shelf Pack
39	58067	9/228	43/112	54/1531	6

Industrial and professional shears



Hot drop-forged. Commercial finished blades. Patented SET-EASY* pivot. Black handles.

Cat.	N/S No.	← "/mm	/≟K ″/mm	oz/g	Shelf Pack
30	58060	10/254	47/124	72/2041	6



Solid steel bent trimmers

Dressmaker's and industrial shears



Hot drop-forged. Nickel plated blades. Black handles.

Cat.	N/S	← - L -→	3		Shelf
No.	No.	"/mm	"/mm	oz/g	Pack
426	58098	6/152	25/68	20/567	6
427	58099	7/178	3½/79	30/851	6
428	58101	8/200	33/95	40/1134	6

Dressmaker's left hand shears



Hot drop-forged. Nickel plated blades. Extra sharp knife edge. Black handles.

Cat.	N/S No.	← L→ "/mm	//mm	oz/g	Shelf Pack
427 1 -LH	58100	7 1 /190	31/82	34/964	6

Dressmaker's polyester shears (serrated/knife-edge*)



Hot drop-forged. Nickel plated blades. Serrated blade holds, extra sharp knife-edge cuts. Blue handles.

Cat.	N/S No.	←└→ "/mm	//mm	oz/g	Shelf Pack
6428	58146	8/200	33/95	40/1134	6

^{*}One blade serrated to prevent slipping; one blade knife-edge.

Professional model knife-edge dressmaker's shears



Hot drop-forged. Nickel plated. Precision ground true knife-edge blades. Screw and nut pivot for adjustment. Blue handles. Cuts up to 12 thicknesses clear to the point.

Cat.	N/S No.	← "/mm	″/mm	oz/g	Shelf Pack
8XKE	58037	8/200	35/92	40/1134	6

Solid steel straight trimmers

Household and industrial shears



Hot drop-forged. Nickel plated blades. Black handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
436	58102	6/152	25/66	24/624	6
437	58103	7/178	3½/79	26/737	6
438	58104	8/200	33/95	38/1077	6

Pinking shears

Wiss pinking shears are famous for their exceptional ease and efficiency in cutting both light and heavy materials. A special Wiss hardening process provides a superior longer lasting cutting edge. The nylon bearing pivot reduces friction and finger fatigue which makes cutting easier. Precision matched teeth provide a decorative



Actual size pink 7½"/190mm, 8"/200mm, 9"/228mm and 101"/266mm Pinkers.



All pinking and skalloping shears feature this special nylon bearing pivot for easier cutting. $\frac{1}{8}$ "/3.17mm.



Hot drop-forged. Extra large teeth. Nickel plated blades. Black handles.

Cat.	N/S No.	← - -→ "/mm	//mm	oz/g	Shelf Pack
CB-7	58030	7½/190	25/64	44/1247	6



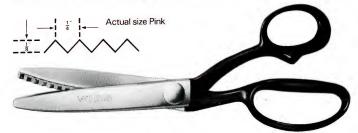
Left hand Pinking shears Left hand blades - Left hand handles



Hot drop-forged. Standard teeth. Nickel plated blades. Black handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
CB-7LH	58031	7½/190	23/70	44/1247	6

CB-9 Pinking shears



Hot drop-forged. Extra large teeth. Nickel plated blades. Black handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
CB-9	58040	9/228	31/83	50/1418	6

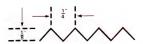
AA Pinking shears



Hot drop-forged. Professional industrial model. Extra large teeth. Nickel plated blades. Black handles.

Cat.	N/S No.	← " /mm	/mm	oz/g	Shelf Pack
AA	58000	10½/266	3 7 /97	80/2268	6

Wissper-lite™ Lightweight pinking shears



Satin finish. Nickel plated blades. Comfortable, contoured, steel reinforced, bold blue handles. Extra large teeth.

Cat.	N/S No.	←↓→ "/mm	"/mm	oz/g	Shelf Pack
8PS	58220	8/200	23/70	16/510	3

Skalloping shears

Exclusive Wiss Skalloping shears create a graceful scallop design, ravel-resistant edge. They perform all the functions of pinking shears and are specially hardened to provide a superior, longer lasting cutting edge. Skalloping shears also feature the nylon bearing pivot that reduces friction, makes cutting easier and reduces finger fatigue.



Hot drop-forged. Nickel plated blades. Blue handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
SN-7	58034	7½/190	2 1/64	44/1247	6



Lightweight rounded pinker. Satin finish nickel plated blades. Comfortable, contoured, bold blue handles.

Cat.	N/S No.	← "/mm	"/mm	oz/g	Shelf Pack
8RPS	58259	8/200	23/70	18/510	3

Contura-Lite® premium lightweight shears, scissors and speed cutters

Premium lightweight range of quality cutting tools for both the factory and home. Attractive vinyl package.

Dressmaker's shears



Lightweight knife-edge blade for cutting polyesters, synthetics, natural fabrics in multiple thicknesses. Comfortable, contoured steel reinforced handles in simulated tortoise-shell. Gleaming nickel plated blades.

Cat.	N/S No.	⊷ "/mm	//mm	oz/g	Shelf Pack
3727-T	58132	7/178	3½/79	22/624	6
3728-T	58133	8/200	35/92	30/851	6
3729-T	58134	9/228	4/162	40/1134	6
3778-T-LH Left hand	58136	8/200	35/92	30/851	6

Embroidery and needlecraft scissors



Designed to provide fine cutting points for needlework and embroidery. Needle sharp points. Polished stainless steel blades. Comfortable simulated tortoise-shell steel reinforced ring handles.

Cat.	N/S No.	← - → "/mm	"/mm	oz/g	Shelf Pack
3765-T	58135	43/121	18/41	8/227	6

Quick-Clip® speed cutters



Stainless steel replaceable blades. Positive spring action reopens blades for fast cutting. Heavy duty contour designed simulated tortoise-shell frames.

Cat. No.	N/S No.	←-L→ "/mm	//mm	oz/g	Shelf Pack
1573-T	58128	43/121	1/26	10/284	6

Replacement parts available, or see page 19.

Keen-edge® Dressmaker's Shears – Stainless Steel



Lightweight, dressmaker's shears with polished stainless steel blades. Comfortable simulated tortoise-shell handles. Adjustable pivot.

Cat.	N/S No.	← "/mm	//mm	oz/g	Shelf Pack
1128-T	58120	8/200	3½/89	26/737	6

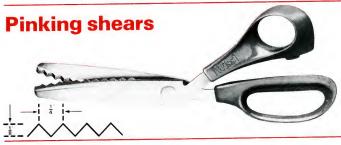
Wissper-Lite™ lightweight shears and scissors

Bright contemporary styling, dependable Wiss quality and competitively priced. Attractive vinyl package.



Satin finish, nickel plated blades. Comfortable contoured bold blue steel reinforced handles.

Cat.	N/S No.	←└→ "/mm	"/mm	oz/g	Shelf Pack
3328	58221	8/200	3½/89	16/454	3



Satin finish, nickel plated blades. Comfortable contoured bold blue steel reinforced handles. Extra large teeth.

Cat.	N/S No.	←-L→ "/mm	//mm	oz/g	Shelf Pack
8PS	58220	8/200	3/76	18/510	3



Satin finish, nickel plated blades. Comfortable contoured bold blue steel reinforced handles. Graceful scallop design. Creates ravelresistant edge.

Cat.	N/S No.	← "/mm	″/mm	oz/g	Shelf Pack
8RPS	58259	8/200	3/76	18/510	3



Satin finish, nickel plated blades. Comfortable contoured bold blue steel reinforced handles. Belongs in kitchens, offices, workrooms and hobby shops.

Cat.	N/S No.	←└→ "/mm	/mm	oz/g	Shelf Pack
3308	58222	7/200	3/76	14/397	3



Satin finish, stainless steel blades. Sharp points. Comfortable bold blue steel reinforced ring handles.

Cat.	N/S No.	← "/mm	//mm	oz/g	Shelf Pack
3365	58223	43/121	18/41	4/113	3

Quick-snip™



Stainless steel blades. Bold blue frame.

Cat.	N/S No.	← "/mm	i≱≮ ″/mm	oz/g	Shelf Pack
3373	58219	43/120	1/26	6/170	3

Sewing and embroidery scissors

3½"/89mm to 6"/152mm in length with two pointed blades or one sharp and one rounded point. Sewing scissors are ideal for light cutting jobs such as cutting light material, darning, ripping and millinery work.

Embroidery scissors are specially designed for intricate cutting, embroidery and fine needlework.

Tailor's points

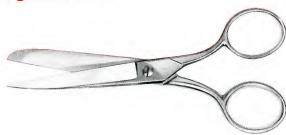
Professional model, extra sturdy



Hot drop-forged. Nickel plated blades. Double sharp points. Black handles.

Cat.	N/S No.	←-L→ "/mm	//mm	oz/g	Shelf Pack
75	58072	5/130	2/51	12/340	6

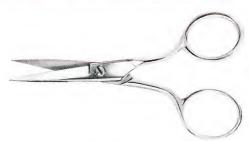
Sewing scissors



Hot drop-forged. Fully nickel plated. 1 sharp and 1 blunt point. Flat pattern. Ring handles. Attractive vinyl-package.

Cat.	N/S No.	←↓→ "/mm	"/mm	oz/g	Shelf Pack
W715	58113	5/134	21/57	10/284	6
W716	58114	6/156	23/70	16/454	6

Sewing and embroidery scissors



Hot drop-forged. Fully nickel plated. Double sharp points. Flat pattern. Ring handles. Attractive vinyl package.

N/S No.	←- - - "/mm	//mm	oz/g	Shelf Pack
58115	3½/89	11/31	6/170	6
58116	4/101	18/35	8/227	6
58117	5/127	2/51	10/284	6
58118	6/152	2½/64	16/454	6
	No. 58115 58116 58117	No. "/mm 58115 3½/89 58116 4/101 58117 5/127	No. "/mm "/mm 58115 3½/89 1½/31 58116 4/101 1¾/35 58117 5/127 2/51	No. "/mm "/mm oz/g 58115 3½/89 1½/31 6/170 58116 4/101 1½/35 8/227 58117 5/127 2/51 10/284

Kitchen/household shears

These versatile shears are ideal for the many miscellaneous jobs in and around the home — preparing food, cracking nuts, opening jars. They cut everything including twine and rope, cardboard, light metal and wire screens.

Hot drop-forged. Fully nickel plated with colorful baked enamel



Cat. No.	N/S No.	← ″/mm	//mm	oz/g	Shelf Pack
KSR Red	58003	8/200	25/66	40/1134	6
KSY Yellow	58004	8/200	25/66	40/1134	6
KSG Green	58002	8/200	25/66	40/1134	6

Barber's shears



Wiss Barber shears will remain sharp while cutting hair quickly and cleanly. Wiss Barber shears are precision ground cutting instruments made of fine cutlery steel.

Wiss solid steel. Hot drop-forged with nickel plated shanks and handles. Polished blades. Attractive vinyl package.

Cat.	N/S No.	← L → "/mm	″/mm	oz/g	Shelf Pack
467½	58105	7½/197	31/79	20/567	6

Replacement and repair parts

908W Anvil pruner

Cat.	N/S No.	Description	Shelf Pack
P4113	58212	908W - spring	10
P19153	58210	Anvil with screw	10
P22229	58211	Cutting blade with latch	1

Quick-Clip® thread clips

Cat. No.	N/S No.	Description	Shelf Pack
9317	58178	Repair kit for 1570B and 1573T sharp points—includes 1 pair of blades, 4 blade screws, 1 spring, 1 stop screw.	1
9318	58179	Repair kit for 1571B blunt points—includes 1 pair of blades, 4 blade screws, 1 spring, 1 stop screw.	1
9328	58180	Replacement blades for 1570B and 1573T sharp points, packed 10 pair of blades and 40 blade screws	10
9329	58181	Replacement blades for 1571B blunt points, packed 10 pair of blades and 40 blade screws.	10

Wissper-lite™ gift sets





Cat.	N/S	
No.	No.	Description
GS-C	58262	3328, 3373. In attractive gift package.
GS-S	58263	3328, 3365. In attractive gift package.
GS-3	58260	3328, 3365, 3373. In attractive gift box.
GS-4	58261	3328, 3365, 3373, 8PS. In attractive gift box.



Wiss Modules

The 4 modules available are for use with the Cooper Tool Wall. For additional information regarding the Cooper module system, see the last 2 pages of this catalog.

TW-46 (58226) Metalmaster[®] module



Size: 16"/406mm x 13"/330mm (C). Shipping Weight: 10 lb/4.53 Kg. Contains: Two (2) Each M-1R, M-2R, M-3R, MPC-3 TW-46A (58227) refill assortment only.

TW-47 (58228) Tinner's snips module



Size: 16"/406mm x 29"/737mm (A) Shipping weight: 23 lb/10.43 Kg. Contains: Two (2) Each V-19, V-10, V-13, A-9, A-10, A-11, A-12, A-13. TW-47A (58229) refill assortment only.

TW-49 (58230) Scissors and shears module



Size: 16"/406mm x 16"/406mm (B). Shipping weight: 7 lb/3.17 Kg. Contains: Two (2) Each 3728T, 3765T, 1573T, 1128T, 428, KSR. TW-49A (58231) refill assortment only.

TW-112 (58234) Scissors and shears module



Size: 16"/406mm x 16"/406mm (B). Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each 3728T, 3765T, 1573T, 437, 175E5V. TW-112A (58235) refill assortment only.

Merchandisers SH-5 (58026) Shears and scissors merchandiser



Size: 19"/483mm x 12"/305mm. Shipping weight: 3 lb 13 oz/1.73 Kg. Contains: Two (2) Each 3728-T, 3765-T, 1573-T, 467\frac{1}{2}, KSR.

MM-36 (58063) Metalmaster® snips merchandiser



Size: 11''/279mm x $12\frac{1}{4}/311$ mm. Shipping weight: 6 lb/2.72 Kg. Contains: Two (2) Each M-1R, M-2R, M-3R. MM-36A (58204) refill assortment only.

7407 (58152) Tinner's snips merchandiser



Size: 10''/254mm to $17\frac{1}{4}/438$ mm x 16''/406mm. Shipping weight: 18 lb/8.16 Kg. Contains: Two (2) Each V-19, V-10, V-13, A-9, A-10, A-11, A-12, A-13.

SC-106 (58078) Shears and scissors merchandiser



Size: 20"/508mm x 12\frac{3}"/324mm. Shipping weight: 5 lb/2.27 Kg. Contains: Two (2) Each 3727T, 3728T, 3729T, 3765T, 1573T, CB7.

WL-5 (58224) Wissper-Lite[™] merchandiser



Size: $18\frac{1}{2}$ "/470mm x 11"/279mm x 11"/279mm.

Shipping weight: 12 lb/5.44 Kg.

Contains: Six (6) Each 3328, 8PS, 3308,

3365, 3373.

SC-11 (58046) Shears and scissors merchandiser



Wiss SCISSORS CENTER

Designed for the notions trade. Safe, secure, plexiglass sliding doors. Size: 25"/635mm x 23"/584mm x 10"/254mm.

Shipping weight: 22 lb 8oz/10.21 Kg. Contains: Three (3) Each 3728T, 3778T-LH, 3765T, 3727T, 1128T, 1573T, 427, CB7, 764, 8XKE, 437.

SH-11 (58047) Shears and scissors merchandiser



Wiss SCISSORS CENTER

Designed especially for the Hardware trade. Safe, secure, plexiglass sliding doors. Size: 25"/635mm x 23"/584mm x 10"/254mm.

Shipping weight: 22 lb 8 oz/10.21 Kg. Contains: Three (3) Each 3728T, 467½, 3765T, 3727T, 1128T, 1573T, 427,

CB7, 8XKE, KSR, 764.

WSC-11 (58275) Shears and scissors merchandiser



Designed for the notions trade. Safe, secure, plexiglass sliding glass doors. Contains: Three (3) Each 3328, 3365, 3373, 8PS, 8RPS, 3728, 3727, 3778, 8XKE, 427, 764.

Floor displays



HF-16 (58065)

Hardware store selection. Safe, secure plexiglass door keeps merchandise clean. Size: 20"/508mm x 40"/1016mm x 11½"/292mm.

Shipping weight: 61 lb/27.67 Kg. Contains: Three (3) Each 3728T, 3727T, 3765T, 1573T, 1128T, 8XKE, 428, 427, 437, 764, W715, CB7, 467½, KSR, 3778T-LH, SN-7.

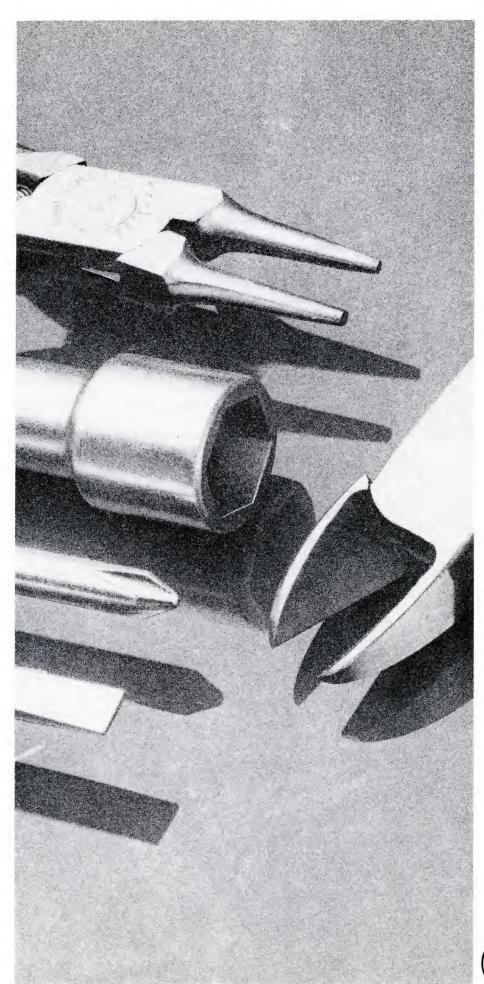
NF-16 (58208)

Notions department selection. Safe, secure plexiglass door keeps mechandise clean. Size: 20"/508mm x 50"/1016mm x 11½"/292mm.

Shipping Weight: 61 lb/27.67 Kg. Contains: Three (3) Each 3728T, 3727T, 3729T, 3778T-LH, 3765T, 1573T, 1128T, 8XKE, 428, 427, 437, 764, W715, CB7, SN7, CB9.

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CooperTools

Xcelite

Xcelite founded in 1921, produces high quality tools for professional use. They are known throughout the electronics industry for a comprehensive range of screwdrivers of various sizes and types, nutdrivers, convertible nutdriver/screwdriver sets, interchangeable blade drivers, service tools and kits, pliers and cutters, shears, snips, wire strippers and wrenches. Many of the products are in kit form to appeal to the DIY and hobby markets.

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Xcelite packaging

Certain tools are available in a special, vacuum packed hanging display package (for examples, see Xcelite modules). To order, add suffix "V." Example R184V is carded, R184 is not carded.

Note:

N/S No. is an abbreviation for NIDA/SIDA Number.

Please quote NIDA/SIDA number (N/S No.) if shown with catalog number to help expedite the entry and shipment of your order.

Key to symbols

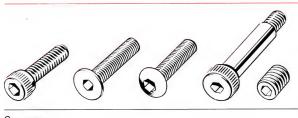
-	Blade diameter
 	Blade length
A +L+	Handle dimensions
←L→	Overall length of screwdrivers
→ € 3	Point size
O	Hex diameter
← ↓→	Overall length

X is an abbreviation for Xcelite.

Xcelite tool selection guide

Proper Xcelite driver for popular size fasteners

Allen type hex socket screws



<i></i>				$\overline{}$		or blade	
Cap scr	ews						
1960	1936	Flat head	Button head	Shoulder	Set	Catalog	Hex
series	series	cap screws	cap screws	screws	screws	number	size
Nomina	l screw sizes						(inches)
_	_	_	_	_	0	P18	.028
_	_	0	0	_	1 & 2	P19	.035
0	0 & 1	1 & 2	1 & 2	_	3 & 4	LN-20, P20, 99-20	.050
1	2	3 & 4	3 & 4	_	5 & 6	LN-21, P21, 99-21	16
2 & 3	3 & 4	5 & 6	5 & 6	_	8	LN-22, P22, 99-22	5 6 4
4 & 5	5 & 6	8	8	_	10	LN-23, P23, 99-23	3 2
6	_	_	_	_	_	LN-764, P764, 99-764	7 6 4
_	8	10	10	1/4	1 4	LN-24, P24, 99-24	18
8	_	_	_	_	_	LN-964, 99-964	9 6 4
10	10 & 12	14	14	5 16	5 1 6	LN-25, 99-25	5 3 2
1	1/4	5 1 6	5 16	3 8	3 8	LN-26, 99-26	3 1 6
_	5	3 8	3 8	_	7	LN-27	7 3 2
5	_	7 16	_	1/2	1/2	LN-28	1/4

Notes:

P Series = midget drivers in PS89 sets.

LN Series = fixed handle drivers. Same size available also in LN-20BP through LN-28BP ballpoint fixed handle drivers. 99 Series = interchangeable blades. Same sizes available also in 99-20BP through 99-26BP ballpoint blades. See also offset ratchet screwdriver sets.

Phillips type screws







Xcelite driver or blade

Xcelite driver

Wood scr	ew	Machine s	screw	Sheet meta Truss	al Flat, round		Blade
Flat oval	Round	oval binding	Round fillister	brazier button	oval, stove binding	Point size	diameter (inches)
0.1	0.1	0.1	0.1	_	_	0	18
2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4	2, 3, 4, 5	2, 3, 4	1	3 16
5, 6, 7, 8, 9	5, 6, 7, 8, 9, 10	5, 6, 8, 10	5, 6, 8, 10	6, 8, 10	5, 6, 7, 8, 10	2	1/4
10, 12 14, 16	12, 14 16	12, ‡"	12, ¼"	12, ¼"	12, 14	3	5
18, 20 24	18, 20 24	5", 3" 16", 8 7", 1"	3", 7" 1"	$\frac{5}{16}''$, $\frac{3}{8}''$, $\frac{7}{16}''$, $\frac{1}{2}''$	-	4	3

Note:

See fixed handle drivers; compact convertible sets; series 99 sets and interchangeable blades; combination reversible drivers, kits, and blades, offset ratchet screwdriver sets.

Bristol type multiple-spline socket screws



Set screws

No. 2-No. 3

No. 5-No. 6

No. 4

No. 5

No. 6

No. 8

No. 10



Cap screws 1960 series

No. 0

No. 1

No. 2-No. 3

No. 4-No. 5





No. 8

1"

No. 10

	Xcelite blade				
Button head	Catalog number	Tip size (inches)	Number of flutes		
No. 0	99-61	.048	6		
No. 1-No. 2	99-62	.060	6		
_	99-63	.069	4		
No. 3-No. 4	99-64	.072	6		
_	99-65	.076	4		
No. 5-No. 6	99-66	.096	6		
No. 8	99-67	.111	6		

.145

.183

6

6

Note: See 99PS-60 compact interchangeable blade set and series 99 blades.

No. 8

Flat head

No. 1-No. 2

No. 3-No. 4

No. 5-No. 6

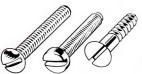
No. 0

Slotted screws

Hex head screws

99-68

99 - 69



Xcelite driver or blade

Screw size	Tip size (inches)
0	3 2 2
1	3 3 2
2	18
3	5 3 2
4	3 16
5	3 16
6	1/4
7	1/4
8	1 6
9	5 16
10	5 1 6
12	3.
14	3
16	76
18	7 1 6

Note: See round and square blade fixed handle drivers, compact convertible sets, series 99 kits and interchangeable blades, combination reversible blade drivers and kits, offset ratchet screwdriver sets.

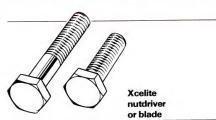


Xcelite nutdriver or blade

Screw size	Screw diameter (inches)	Number*	Hex opening (inches)
1	.073	4	18
2	.086	4	18
3	.099	6	3
4	.112	6	3 16
5	.125	6	3 16
6	.138	8	14
7	.151	8	1/4
8	.164	8	14
10	.190	10	5
12	.216	10	5
1/4	.250	12	3
5	.312	16	1/2
3	.375	18	9
			*-1

*See fixed handle drivers catalog numbers with or without prefix P, HS, A or AA, magnetic nutdrivers with suffix M; and series 99 blades with prefix 99.

Hex head bolts and hex head cap screws



Bolt or screw size	Number*	Hex opening (inches)
1	14	7
5 16	16	1/2
3	18	9 16
7 16	20	58
1/2	24	3

^{*}See fixed handle drivers catalog numbers with or without prefix P, HS, A, or AA; Magnetic nutdrivers with suffix M; and series 99 blades with prefix 99.

Clutch head screws



Xcelite driver or blade

Screw	Tip size
size	(inches)
2	3 3 2
3	3 3 2
4	32 - 1 32 - 8
6	1 - 5 8 - 32
8	5 3 2
10	5 - 3 32 - 16
12	3 1 1 4
14, 1/4	1/4
5 16	1 6
3	1 <u>5</u>

Note: See fixed handle drivers, series 99 interchangeable blades, and combination reversible tools.

Hex nuts



Xcelite nutdriver or blade

Nut size	Number*	Hex opening (inches)
1	14	7 16
5.16	16	1/2
3	18	9
7 16	22	116
1/2	24	3
-		

^{*} See fixed handle drivers catalog numbers with or without prefix P, HS, A, or AA; magnetic nutdrivers with suffix M; and series 99 blades with prefix 99.

Hex machine screw nuts







Xcelite nutdriver or blade

	For		Hex
Nut	screw		opening
size	diameter	Number*	(inches)
0	.060	5	5 3 2
1	.073	5	5 3 2
2	.086	6	3 16
3	.099	6	3 16
4	.112	8	1
5	.125	10	5
6	.138	10	16
8	.164	11	11 32
10	.190	12	3 8
12	.216	14	7 16
1/4	.250	14	7
5	.312	18	9
3 8	.375	20	58
	محمد شراء حالت حالت	actalog numba	re with or

*See fixed handle drivers catalog numbers with or without prefix P, HS, A or AA, magnetic nutdrivers with suffix M; and series 99 blades with prefix 99.

Torx screws



	driver	
Torx size	Tip size (inches)	
T10	XTD-10	
T15	XTD-15	
T20	XTD-20	
T25	XTD-25	
T27	XTD-27	
T30	XTD-30	

Screwdrivers for slotted screws

Except where otherwise noted, all blades are AISI 6150 chrome vanadium steel, finished in bright nickel chrome. Round-blade, fixed-handle screwdrivers can be furnished (optionally, at extra cost) with blades which have been insulated by plastic dip-coating.

Pocket clip style - round blade



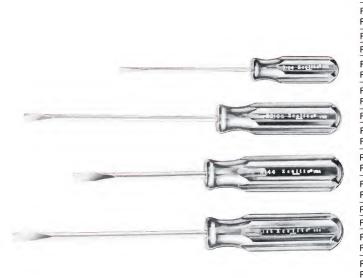
Cat.	N/S No.	inches	["/mm	← └→ "/mm	Shelf Pack
R3322 R3322V	48565 48566	3 2"	2/51	41/108	12
R3323	48567	3 "	3/76	51/133	12
R3324	48568	3"	4/102	61/159	12
R181 R181V	48545 48546	18"	2/51	41/108	12
R183	48548	1 "	3/76	51/133	6

Display cards

 $181\!-\!20$ (48367) Consists of 20 each R181 pocket clip screwdrivers on display card.

332-20 (48368) Consists of 20 each R3322 pocket clip screwdrivers on display card.

Regular - round blade



Cat.	N/S	<u> </u>	 	← L →	Shelf
No.	No.	inches	"/mm	"/mm	Pack
R182	48547	1"	2/51	48/117	6
R184 R184V	48549 48550	1"	4/102	65/168	6
R186 R186V	48551 48552	1 "	6/152	85/219	6
R188 R188V	48553 48554	18"	8/203	10 5/270	6
R1810	48557	18"	10/254	125/321	6
R5323	48573	5 " 3 2	3/76	5 143	6
R5324 R5324V	48574 48692	5 " 3 2"	4/102	65/168	6
R5325 R5325V	48575 48576	5 ″	5/127	75/194	6
R5328	48577	5 " 3 2	8/203	10 { / 270	6
R3163 R3163V	48558 48559	3 " 16"	3/76	6 ½ / 168	6
R3164 R3164V	48560 48561	3 " 16"	4/102	75/194	6
R3166 R3166V	48562 48563	3 " 16"	6/152	95/244	6
R3168	48564	3 " 16"	8/203	11 1 1 295	6
R31610	48578	3"	10/254	13 1/346	6
R144 R144V	48540 48541	₫"	4/102	81/206	6
R146 R146V	48542 48543	1"	6/152	101/257	6
R148	48544	1"	8/203	121/308	6
R1410	48556	1"	10/254	141/359	6
R5164 R5164V	48569 48691	5 "	4/102	8½/216	6
R5166 R5166V	48570 48571	5 " 16"	6/152	10½/267	6
R5168	48572	5″ 16″	8/203	12½/317	6
R388	48555	3"	8/203	12½/317	6

Round blade screwdriver set



SDR-11 (48610) contains 5 round blade screwdrivers for slotted screws. Catalog Nos. R182, R5324, R3166, R144 and R5166.

Stubby – square blade



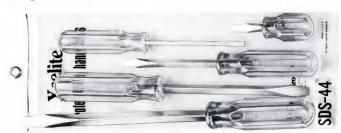
Cat.	N/S No.	inches	[← ι → "/mm	[← L →] "/mm	Shelf Pack
S3161 S3161V	48592 48694	3 " 16"	11/32	2 ³ /70	6
S141 S141V	48585 48693	1"	11/32	31/83	6
S5161 S5161V	48601 48695	5 "	11/32	31/83	6

Regular – square blade



Cat.	N/S No.	inches	 "/mm	← L→ "/mm	Shelf Pack
S3163 S3163V	48593 48594	3 " 16"	3/76	65/168	6
S3164 S3164V	48595 48596	3 " 16"	4/102	7§/194	6
S3166 S3166V	48597 48598	3 " 16"	6/152	9 ½ / 244	6
S3168	48599	3 "	8/203	11 1 295	6
S144 S144V	48586 48587	1 "	4/102	81/206	6
S146 S146V	48588 48589	1/4"	6/152	101/257	6
S148	48590	1 "	8/203	12½/308	6
S5164 S5164V	48602 48696	5 " 16"	4/102	8½/216	6
S5166 S5166V	48603 48604	5 " 1 6"	6/152	10½/267	6
S5168	48605	5 " 16"	8/203	12½/317	6
S51610	48606	5 " 16"	10/254	14½/368	6
S388	48591	3"	8/203	12½/317	6
S3812	48600	3"	12/305	18/457	6
S71612	48607	7 16	12/305	18/457	6
S71618	48608	7 " 16"	18/457	24/610	6

Square blade screwdriver set



SDS-44 (48611) contains 5 square blade screwdrivers for slotted screws. Catalog Nos. S141, S3164, S144, S5166, S388.

Screwdrivers for recess head screws

Pocket clip style - Phillips type



Cat. No.	N/S No.	Point size	inches	<u> ← </u>	[•- • →] "/mm	Shelf Pack
P12S P12SV	48485 48690	0	1 "	2/51	41/108	12

Note: P12S20 - Hang up card containing twenty P12S screwdrivers.

Stubby - Phillips type



Cat.	N/S No.	Point size	inches	 "/mm	← L → "/mm	Shelf Pack
SX-101	48622	1	3 "	1 7/6/37	3 7 / 87	6
SX-102	48623	2	1"	1 5/33	33/86	6

Regular – Phillips type



Cat. No.	N/S No.	Point size	inches	i⊷τ→i ″/mm	← L → "/mm	Shelf Pack
X100 X100V	48637 48638	0	1 "	2/50	45/117	6
X101 X101V	48639 48640	1	3 "	3/76	€8/168	6
X108 X108V	48646 48647	1	3"	6/152	95/244	6
X102 X102V	48641 48642	2	1"	4/102	$8\frac{1}{8}/206$	6
X103 X103V	48643 48644	3	5 " 1 6	6/152	10½/267	6
X104	48645	4	3"	8/203	12½/317	6

Extra long - Phillips type



Cat. No.	N/S No.	Point size	inches	ı́⊷⊾⊸i "/mm	/ / ″/mm	Shelf Pack
X1010	48648	1	3 "	10/254	135/346	6
X1020	48649	2	1"	10/254	141/359	6

Super-tru tip - Phillips type





The bright, nickel chrome blades have tips which have been specially treated and finished with black oxide for the ultimate in control. The advantage lies in the closer fit of the super-tru tips for much longer wear life and the reduction of damage to screw head recesses, especially in the smaller size fasteners.

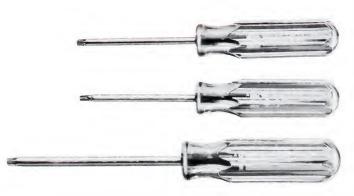
Cat.	N/S No.	Point size	inches	[— ∟—] ″/mm	[← L →] "/mm	Shelf Pack
XST-100 XST-100V	48673 48674	0	1 "	2/50	45/117	6
XST-101 XST-101V	48675 48676	1	3 " 16"	3/76	6§/168	6
XST-102 XST-102V	48677 48678	2	1/4	4/102	81/206	6
XST-1010	48679	1	3_"	10/254	138/371	6
XST-1020	48680	2	1"	10/254	141/359	6

Frearson (Reed & Prince) Type



Cat. No.	N/S No.	inches	(— L → "/mm	/ <u>← L →</u> ·	Shelf Pack
RP-101	48582	3	3/76	65/168	6
RP-102	48583	1	4/102	81/206	6

Screwdrivers for Torx® head screws



Cat. No.	N/S No.	inches	/— L→ "/mm	(← L→) "/mm	Shelf Pack
XTD-10 XTD-10V	48803 48804	3 " 16"	3/76	65/168	6
XTD-15 XTD-15V	48805 48806	3 " 16"	3/76	6§/168	6
XTD-20 XTD-20V	48807 48808	3 " 16"	3/76	65/168	6
XTD-25 XTD-25V	48809 48810	3 " 16"	3/76	65/168	6
XTD-27 XTD-27V	48811 48812	1 "	4½/105	85/220	6
XTD-30 XTD-30V	48813 48814	14"	4½/105	85/220	6

Screwdriver sets





SDX-22 (48612) contains 5 pieces — all Phillips. Catalog numbers X100, X101, X102, X103, SX102.

XST-3 (48735) contains 3 pieces — all Super-tru tip Phillips type. Catalog numbers XST-100, XST-101, XST-102.

XST-5 (48736) contains 5 pieces - all Super-tru tip Phillips type. Catalog numbers XST-100, XST-101, XST-102, XST-1010 and XST-1020.

SD-3V (48609) contains 3 pocket clip screwdrivers $-\ R181$ and R3322 for slotted screws, P-12S for Phillips head screws.

SRX-33 (48621) contains 6 pieces -4 round blade for slotted screws, numbers R184, R3166, R144, R5166 and 2 Phillips types, numbers X101 and X102.

Screwdrivers for recessed socket head screws

Allen hex socket type Inch sizes – amber handles



Cat. No.	N/S No.	inches	(/mm	← L → "/mm	Shelf Pack
LN-20	48446	.050"	4/102	65/168	6
LN-21 LN-21V	48447 48827	16"	4/102	65/168	6
LN-22 LN-22V	48448 48828	5 " 6 4	4/102	65/168	6
LN-23 LN-23V	48449 48829	32"	4/102	$7\tfrac{1}{8}/190$	6
LN-764 LN-764V	48455 48830	7 "	4/102	71/190	6
LN-24 LN-24V	48450 48831	18"	4/102	71/190	6
LN-964 LN-964V	48456 48832	9 " 6 4	4/102	7½/190	6
LN-25 LN-25V	48451 48833	5 " 3 2 "	4/102	9½/232	6
LN-26 LN-26V	48452 48834	3 "	6/152	101/257	6
LN-27	48453	7 "	6/152	10½/257	6
LN-28	48454	1/4"	6/102	10½/257	6

Metric sizes - black handles



Cat.	N/S	<u>*</u>	← L →	← L →	Shelf
No.	No.	mm	mm	mm	Pack
LN-1.27MM	48426	1.27	102	168	6
LN-1.5MM	48427	1.50	102	168	6
LN-2MM	48428	2.00	102	168	6
LN-2.5MM	48429	2.5	102	181	6
LN-3MM	48430	3	102	181	6
LN-4MM	48431	4	102	181	6
LN-5MM	48432	5	102	181	6
LN-6MM	48433	6	102	181	6

Roll-up kits for Allen hex socket type



LN-11 kit (48445) (inch sizes)

A complete set of the LN series Allen hex type screwdrivers. Comes in a roll-up canvas case, plastic-coated for wear and protection.

LN-8MM kit (48434) (metric sizes)

A complete set of 8 drivers with black handles as listed in metric size table above. Comes in a roll-up canvas case, plastic-coated for wear and protection.

Ballpoint style, Allen hex socket type

Unique "ballpoint" tip makes these Xcelite drivers ideal for tightening and removing Allen type socket head screws in spots where you can't reach them straight-on or merely want an easier, quicker way to drive them home. Will engage screw head from any angle. Slip easily into sockets and hold securely without reaming, because ends are precision-machined to close tolerances.

Inch sizes - amber handles



Cat.	N/S	<u> </u>	← L → 	[Shelf
No.	No.	inches	"/mm	"/mm	Pack
LN-20BP	48457	.050"	4/102	65/168	6
LN-21BP	48458	1 "	4/102	65/168	6
LN-22BP	48459	5 "	4/102	65/168	6
LN-23BP	48460	3"	4/102	7½/181	6
LN-764BP	48466	7 "	4/102	7½/181	6
LN-24BP	48461	1 "	4/102	7½/181	6
LN-964BP	48467	9 "	4/102	7½/181	6
LN-25BP	48462	5 "	4/102	$7\frac{1}{8}/181$	6
LN-26BP	48463	3"	6/152	$7\frac{1}{8}/181$	6
LN-27BP	48464	7 "	6/152	7½/181	6
LN-28BP	48465	₫"	6/102	7½/181	6

Metric sizes - black handles



Cat.	N/S	<u>*</u>	[← L →]	← L →	Shelf
No.	No.	mm	mm	mm	Pack
_N-1.27MMBP	48435	1.27	102	168	6
N-1.5MMBP	48436	1.5	102	168	6
_N-2MMBP	48437	2	102	168	6
N-2.5MMBP	48438	2.5	102	181	6
_N-3MMBP	48439	3	102	181	6
N-4MMBP	48440	4	102	181	6
N-5MMBP	48441	5	102	181	. 6
N-6MMBP	48442	6	102	181	6

Roll-up kits for Ballpoint style, Allen hex socket type



LN-8MMBP (48443) - Metric sizes

All 8 ballpoint, Allen hex socket type screwdrivers. Comes in rollup canvas case.

LN-9BP (48444) - Inch sizes

9 ballpoint, Allen hex socket type screwdrivers (LN-20BP through LN-26BP). Comes in roll-up canvas case.

Scrulox type

(color-coded handles)



All blades are bright nickel chrome plated.

_				← L →	←- L →	Shelf
Cat.	N/S	Point	Handle			Pack
No.	No.	size	color	"/mm	"/mm	Pack
SL-0 SL-0V	48613 48614	0	amber	3½/89	71/194	6
SL-1 SL-1V	48615 48616	1	green	3½/89	78/194	6
SL-2 SL-2V	48617 48802	2	red	3½/89	7§/194	6
SL-3 SL-3V	48619 48620	3	black	31/89	78/194	6
SL-2L SL-2LV	48618 48801	2	red	5½/130	91/235	6

Clutch head type (furnished in type "G" design – amber handles)



Cat.	N/S No.	inches	₹ — ″/mm	[← L →] "/mm	← └ → "/mm	Shelf Pack
G5324 G5324V	48399 48400	5 "	3 ₁₆ /5	4/102	71/194	6
G3164 G3164V	48397 48398	3"	1/6	4/102	$7\frac{7}{8}/200$	6
G146	48395	4"	$\frac{9}{32}/7$	6/152	10½/257	6

TR-4 fixed handle tool kit (48634)



Basic maintenance tool kit containing 4 fixed-handle drivers, all the blades securely imbedded in top quality plastic handles, housed in plastic view case. Available separately.

Cat.	N/S No.	Description	Shelf Pack
No. 8	48700	¼" hex socket nutdriver	6
G5324	48399	52" clutch-head screwdriver	6
SL-1	48615	No. 1 Scrulox square recess screwdriver	6
SL-2	48617	No. 2 Scrulox square recess screwdriver	6
TR-4	48634	Complete set	1

Combination reversible screwdrivers and kits

Economical multi-purpose tool sets and kits consisting of either regular or stubby handle combined with one or more of reversible, interchangeable combination blades.

Blades and handle may be purchased separately.

Blades snap in and out easily and are held firmly in perfect alignment by patented spring lock.

Handle



Cat.	N/S No.	Description	mm x mm/" x "
25	48133	regular	28.57 x 104.77/1 x 4 x 4 x 4 x 4 x 4 x 4 x 4 x 4 x 4 x

Reversible blades



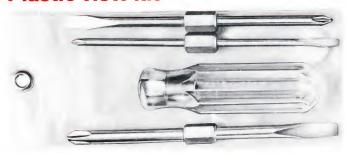
Cat.	N/S No.	₹ —	Description	(Shelf Pack
RB-1	48579	$\frac{3}{16}/4.76$	no. 1 Phillips - 3 slotted	61/159	6
RB-2	48580	1/6.35	no. 2 Phillips - ¼" slotted	61/159	6
RB-3	48581	5/7.94	no. 3 Phillips $-\frac{5}{16}$ " slotted	61/159	6

Combination reversible blades and handles



Cat. No.	N/S No.	Description	-
CR-1 CR-1V	48390 48391	No. 25 handle & RB1 blade	71/184.15
CR-2 CR-2V	48392 48393	No. 25 handle & RB2 blade	74/184.15

Plastic view kit



CK20 (48388)

Zipper case with RB1, RB2 blades and No. 25 handle.

CK23 (48389)

Zipper case with RB1, RB2 and RB3 blades and No. 25 handle.

CK-3 pocket roll kit



CK-3 (48387) contains RB1, RB2 and RB3 blades with No. 25 bandle

600 (48369) 4-way pocket tool



An extremely versatile time-saver, especially handy for removing backs of TV sets and installing antennas. Double-ended handle serves as two sizes of nutdrivers, while special reversible SB1 blade fits slotted or Phillips head screws.

Four-in-one screwdriver



Extra handy self-storing standard shaft screwdriver converts in seconds to the four most often needed tips, $\frac{3}{16}''$ and $\frac{1}{4}''$ slotted tips and Nos. 1 and 2 Phillips type. These 2 blades are also interchangeable with the Two-In-One.

Cat. No.	N/S No.	Description	Shelf Pack
FSD-1 FSD-1V	48753 48760	Four-in-one screwdriver complete	6
FSDP-1	48754	Handle only	6
FSDP-2	48755	Toolholder only	6
FSDP-3	48756	3/8 slotted and No. 1 Phillips blade only	6
FSDP-4	48757	¼" slotted and No. 2 Phillips blade only	6

Two-in-one screwdriver



Stubby $\frac{3}{16}$ " slotted tip end No. 1 Phillips types.

Cat. No.	N/S No.	Description	Shelf Pack
TSD-1 TSD-1V	48758 48761	Two-in-one screwdriver complete	6
TSDP-1	48759	Handle only	6

Nutdrivers - fixed handle

Xcelite nutdrivers feature steel shafts and precision-machined, cold-drawn, case-hardened sockets with bright finish. Firm grip plastic handles are color-coded for easy size identification. Fixed handle nutdrivers can be furnished (optionally at extra cost) with blades which have been insulated by plastic dip-coating. Xcelite also offers a variety of nutdriver blades which fit interchangeably in special handles. See pages X19 and X20.

Regular - drilled shaft



Cat.	N/S No.	Color Code	TO inches	Depth of hole	[← - →] "/mm	← L → "/mm	Shelf Pack
6 6V	48105 48107	Black	3 " 16"	11"	3/76	6½/156	6
7 7V	48108 48701	Brown	7 "	117	3/76	6½/156	6
8 8V	48700 48114	Red	1"	11/2"	3/76	61/156	6
9 9V	48115 48686	Orange	9 " 3 2	118"	3/76	6½/156	6
10 10V	48117 48121	Amber	5 " 16"	11"	3/76	6½/156	6
11 11V	48122 48124	Green	11" 32"	11 "	3/76	$6\tfrac{1}{8}/156$	6
12 12V	48125 48127	Blue	3" 8	1급"	3/76	$6\frac{1}{8}/156$	6
14 14V	48129 48130	Brown	716"	177	27/73	7/168	6
16 16V	48131 48132	Red	1/2"	178	27/73	7/168	6

Regular – full hollow shaft Inch sizes, color-coded handles



Cat. No.	N/S No.	Color Code	inches	Depth of hole	[← L →] "/mm	/— L → "/mm	Shelf Pack
HS-6 HS-6V	48403 48404	Black	3 " 16"	6"	$3\frac{1}{8}/79$	61/159	6
HS-7 HS-7V	48405 48688	Brown	7 "	6"	$3\frac{1}{8}/79$	61/159	6
HS-8 HS-8V	48406 48407	Red	1"	7″	$3\frac{1}{8}/79$	71/184	6
HS-9 HS-9V	48408 48689	Orange	9 " 3 2	7″	$3\frac{1}{8}/79$	71/184	6
HS-10 HS-10V	48409 48410	Amber	5 " 1 6 "	7″	$3\frac{1}{8}/79$	71/184	6
HS-11 HS-11V	48411 48412	Green	11'' 32''	7″	$3\frac{1}{8}/79$	71/184	6
HS-12 HS-12V	48413 48414	Blue	3" 8	7″	$3\frac{1}{8}/79$	71/184	6
HS-14 HS-14V	48415 48416	Brown	7 16"	7″	$3\frac{1}{8}/79$	71/184	6
HS-16 HS-16V	48417 48418	Red	1"	7″	$3\frac{1}{8}/79$	71/184	6
HS-18 HS-18V	48419 48420	Orange	9 " 16	7″	$3\frac{1}{8}/79$	71/184	6

Extra long – full hollow shaft Inch sizes, color-coded handles



Cat. No.	N/S No.	Color Code	inches	Depth of hole	 "/mm	[← L →] "/mm	Shelf Pack
L-6 L-6V	48371 48387	Black	3 " 16"	83″	6/152	91/232	6
L-8 L-8V	48372 48375	Red	<u>‡</u> "	93″	6/152	$10\frac{1}{8}/257$	6
L-10 L-10V	48376 48379	Amber	5 " 16"	9¾″	6/152	101/257	6
L-11 L-11V	48380 48381	Green	11" 32"	9¾"	6/152	$10\frac{1}{8}/257$	6
L-12 L-12V	48382 48383	Blue	3"	9¾″	6/152	$10\frac{1}{8}/257$	6

Metric nutdrivers

Manufactured precisely to metric dimension, these tools are particularly useful in the assembly and servicing of foreign equipment. Blades, shafts and shanks are finished in bright finish.

Regular – drilled shaft Metric sizes, black handles



Cat.	N/S	Ċ	<u> ← L → </u>	Depth of hole	← L →	Thread diameter Hex head cap screws	Hex nuts	Shelf
No.	No.	mm	mm	mm	mm	mm	mm	Pack
4MM	48100	4	76	29	156	_	2	6
4.5MM	48101	4.5	76	29	156	_	2.3	6
5MM	48103	5	76	29	156	2.6	2.6	6
5.5MM	48104	5.5	76	29	156	3	3	6
6MM	48106	6	76	29	156	3.5	3.5	6
7MM	48109	7	76	29	156	4	4	6
8MM	48112	8	76	29	156	5	5	6
9MM	48116	9	76	29	156	5	5	6
10MM	48119	10	73	48	178	6	6	6
11MM	48123	11	73	48	178	7	7	6

Full - hollow shaft



N/S	Ċ	← L →	Depth of hole	← L →	Shelf
No.	mm	mm	mm	mm	Pack
48126	12	79	178	184	6
48128	13	79	178	184	6
	No. 48126	No. mm 48126 12	N/S No. mm mm 48126 12 79	N/S hole No. mm mm mm 48126 12 79 178	N/S No. mm mm mm mm mm mm mm 48126 12 79 178 184

Magnetic nutdrivers



Exclusive with Xcelite ¼" and ½" magnetic fixed handle nutdrivers offer ultimate in convenience for assembly and service operations involving hex fasteners. The Alnico permanent magnet inserted in socket holds fasteners firmly for easy, one-hand driving or for retrieving on removal. A unique Xcelite development effectively insulates magnet. All nutdriver sockets have been specially treated and hardened for use with self-tapping screws. Comfortable contoured handle not only provides adequate torque for one-hand driving, but distinguishes these magnetic tools from regular Xcelite nutdrivers. See also the 99 series for magnetic shafts.

Cat. No.	N/S No.	inches	Handle Color	[← L →] "/mm	← ↓ → " /mm	Shelf Pack
8MV	48111 48113	₫"	Red	3/76	6½/156	6
10M 10MV	48118 48120	5 " 16"	Amber	3/76	6½/156	6
L-8-M L-8-MV	48373 48374	≟″	Red	6/152	10½/257	6
L-10-M L-10-MV	48377 48378	5_″ 16″	Amber	6/152	101/257	6
LL-8-M	48384	1 "	Red	163/444	20½/552	6
LL-10-M	48385	15"	Amber	163/444	207/552	6

Color coded nutdriver sets "Tray bien"



 $127TB\,(48362)$ contains solid shaft Nos. 6, 7, 8, 9, 10, 11 and 12.

147TB (48363) contains hollow shaft Nos. HS8, HS9, HS10, HS11, HS12, HS14 and HS16.

Nutdriver set



 $157\ (48365)$ contains 7 pieces, all regular drilled shaft, Nos. 6, 8, 10, 11, 12, 14 and 16.

177 (48366) contains 7 pieces, all hollow shaft, Nos. HS6, HS8, HS10, HS11, HS12, HS14 and HS16.

Nutdriver kit "Keep and carry" case



Inch sizes

HS6-18 (48421) sturdy yellow plastic case keeps nutdrivers orderly on workbench, carries them on service calls. Contains hollow shaft Nos. HS6, HS7, HS8, HS9, HS10, HS11, HS12, HS14, HS16 and HS18.

Metric sizes

4-13MM (48102) is a 10-piece set of popular size metric nutdrivers: 4MM through 8MM, 10MM, 11MM, 13MM. All have 31.35mm depth shaft hole. Red "keep and carry" case.

Compact convertible tool sets

Compact convertible tool sets do more jobs with fewer tools, save bench space, and lighten the service kit. Each set is equipped with a remarkable black, "piggyback" Torque amplifier handle (catalog No. TA2) that slips over the top of color-coded Midget drivers to provide larger gripping service, extended reach, and increased driving power. Sets housed in flexible, plastic, stand-up cases with see-through covers. All individual screwdrivers and nutdrivers are available separately.

PS-88 screwdriver set Inch sizes (color-coded handles)



Contents:-					
Cat.	N/S No.	Handle Color	inches	← L → "/mm	Shelf Pack
P3321	48505	Green	3"	3½/89	12
P181	48502	Red	1 "	3½/89	12
P5321	48506	Black	5 " 3 2"	3½/89	12
P3161	48504	Orange	3."	3½/89	12
P141	48501	Amber	₫"	3½/89	12
PO	48471	Blue	0 Phillips	3½/89	12
P1	48472	Brown	1 Phillips	31/89	12
P2	48473	Amber	2 Phillips	31/89	12
TA-2	48624	Black	Torque amp	lifier handle	6
PS-88	48523	Complete s	et		3
PS-88V	48524	Complete s	et carded		3

PS-7 screwdriver and nutdriver set Inch sizes (color-coded handles)



Contents: -					
Cat.	N/S	Handle	<u> </u>	← L →	Shelf
No.	No.	Color	inches	"/mm	Pack
P3161	48504	Orange	3"	3½/89	12
P3321	48505	Green	3 2"	3½/89	12
PO	48471	Blue	O Phillips	$3\frac{1}{2}/89$	12
P1	48472	Brown	1 Phillips	3½/89	12
Nutdrivers					
P8	48479	Red	1/"	$3\frac{1}{2}/89$	12
P10	48482	Amber	5 "	$3\frac{1}{2}/89$	12
TA-2	48624	Black	Torque amp	lifier handle	6
PS-7	48519	Complete s	et		3
PS-7V	48520	Complete s	et carded		3

PS-120 nutdriver set Inch sizes (color coded handles)



Contents: -					
Cat.	N/S No.	Handle Color	inches	[← └→] "/mm	Shelf Pack
P3	48474	Blue	37"	3½/89	12
P4	48475	Red	18"	3½/89	12
P5	48476	Amber	5 "	3½/89	12
P6	48477	Black	3"	3½/89	12
P7	48478	Brown	7 "	$3\frac{1}{2}/89$	12
P8	48479	Red	₫"	3½/89	12
P9	48481	Orange	9 "	3½/89	12
P10	48482	Amber	5"	3½/89	12
P11	48483	Green	11"	3½/89	12
P12	48484	Blue	3"	$3\frac{1}{2}/89$	12
TA-2	48624	Black	Torque am	plifier handle	3
PS-120	48528	Complete s	et		3
PS-120V	48529	Complete s	et carded		3

PS-121 MM metric compact convertible nutdriver set



Contents: -				
Cat.	N/S	Ţ	 	Shelf
No.	No.	mm	mm	Pack
P3MM	48507	3	89	12
P3.5MM	48508	3.5	89	12
P4MM	48509	4	89	12
P4.5MM	48510	4.5	89	12
P5MM	48511	5	89	12
P5.5MM	48512	5.5	89	12
P6MM	48513	6	89	12
P7MM	48514	7	89	12
P8MM	48515	8	89	12
P10MM	48516	10	89	12
TA-2	48624	Torque amp	lifier handle	3
PS-121MM	48530	Complete se	t	3

PS-130 screwdriver and nutdriver set Inch sizes (color-coded handles)



Contents: - Screwdriver					
Cat.	N/S No.	Handle Color	inches	.	Shelf Pack
P1	48472	Brown	1 Phillips	_	12
P2	48473	Amber	2 Phillips	_	12
P181	48502	Red	1 "	_	12
P3161	48504	Orange	3 "	_	12
P141	48501	Amber	∄″		12
Nutdrivers					
P6	48477	Black	_	3 " 16"	12
P8	48479	Red		1"	12
P10	48482	Amber	_	5 " 16"	12
P11	48483	Green		11"	12
P12	48484	Blue		3"	12
TA-2	48624	Black Tor	que amplifier han	dle	3
PS-130	48531	Complete s	et		3
PS-130V	48532	Complete s	et carded		3

PS-89 screwdriver set for hex socket screws Inch sizes (red handles)



Contents:-				
Cat.	N/S	O	← L →	Shelf
No.	No.	inches	"/mm	Pack
P18	48487	.028"	4/102	12
P19	48488	.035"	4/102	12
P20	48489	.050"	4/102	12
P21	48490	16"	4/102	12
P22	48491	5 "	4/102	12
P23	48492	37"	4/102	12
P764	48503	7 6 4	4/102	12
P24	48493	1"	4/102	12
TA-2	48624	Torque ampli	fier handle	3
PS-89	48525	Complete set		3
PS-89V	48526	Complete set	carded	3

PS-90MM compact convertible hex socket screwdriver set Metric sizes (black handles)



Cat.	N/S	Ō		Shelf
No.	No.	mm	mm	Pack
P78	48500	0.89	102	12
P71	48494	1.27	102	12
P72	48191	1.5	102	12
P73	48495	2.0	102	12
P74	48496	2.5	102	12
P75	48497	3.0	102	12
P76	48498	4.0	102	12
P77	48499	5.0	102	12
PS-90MM	48527	Complete se	t	3
TA-2	48624	Torque amplifier handle		3

PS-44 Scrulox screwdriver set Inch sizes (color-coded handles)



Contents	s:-						
Cat. No.	N/S No.	Point size	Description	Handle Color	Screw size	 ″/mm	Shelf Pack
PSL-0	48536	6 0	Scrulox	Yellow	3, 4	$3\frac{1}{2}/89$	12
PSL-1	48537	7 1	Scrulox	Green	5, 6, 7	$3\frac{1}{2}/89$	12
PSL-2	48538	3 2	Scrulox	Red	8, 9, 10	$3\frac{1}{2}/89$	12
PSL-3	48539	3	Scrulox	Black	12-14	$3\frac{1}{2}/89$	12
P3161	48504	3 " 16"	Slotted screwdriver	Orange	_	$3\frac{1}{2}/89$	12
P8	48479	1 4"	Nutdriver	Red	_	$3\frac{1}{2}/89$	12
TA-2	48624	ļ	Torque amplifier hand	dle			3
PS-44	48521		Complete set				3
PS-44V	48522	2	Complete set carded				3

PS-TR-1 compact convertible set



A companion to Xcelite's other Compact Convertible Sets, the PS-TR-1 includes 8 midget driver selected to cover virtually any requirement of RV maintenance and service, the unique "piggyback" torque amplifier handle, and the flexible plastic, stand-up case with see-through cover.

N/C		Shelf
	B	
No.	Description	Pack
48537	No. 1 Scrulox square recess screwdriver	12
48538	No. 2 Scrulox square recess screwdriver	12
48517	5 clutch-head screwdriver	12
48479	¼" hex socket nutdriver	12
48472	No. 1 Phillips type screwdriver	12
48473	No. 2 Phillips type screwdriver	12
48504	3 tip, slotted screwdriver	12
48501	1" tip, slotted screwdriver	12
48534	Complete set	3
48535	Complete set carded	3
	48538 48517 48479 48472 48473 48504 48501 48534	No. Description 48537 No. 1 Scrulox square recess screwdriver 48538 No. 2 Scrulox square recess screwdriver 48517 3½" clutch-head screwdriver 48479 ¼" hex socket nutdriver 48472 No. 1 Phillips type screwdriver 48473 No. 2 Phillips type screwdriver 48504 ¾" tip, slotted screwdriver 48501 ¼" tip, slotted screwdriver 48534 Complete set

M60 Mini-driver kit Inch sizes (color-coded handles)



The Xcelite M60 Mini-driver kit is a miniaturized version of the Compact Convertible Set. The 6 Mini-Drivers consist of jeweler's-type and Phillips screwdriver blades molded in color-coded plastic handles for precise, detailed work. The kit contains a black Torque Amplifier Handle (Catalog No. M06) \(\frac{1}{8}'' \) × 3\(\frac{1}{16}'' / 22.22\text{mm} \times 77.78\text{mm} \) and is furnished in a see-through plastic case. Mini-Drivers not available separately.

Cat.	N/S	Handle	× ·	<u> ← L → </u>	← L →	Shelf
No.	No.	Color	"/mm	"/mm	"/mm	Pack
MOO	-	Blue	00 Phillips	7/22	$2\frac{1}{8}/54$	
MO1		Amber	.04/1	$\frac{7}{8}/22$	21/54	
MO2		Orange	.055/1	₹/22	21/54	
MO3		Brown	.07/2	⁷ /22	21/54	
M04		Red	.08/2	₹/22	21/54	
M05		Green	.10/3	½/22	21/54	
M06		Black	Torque amp	olifier handle		6
M60	48468		Complete s	et		6
M60V	48469		Complete se	et carded		6

Series 99 blades, shanks, and handles

The series 99 interchangeable blades, shanks, and handles shown on these pages are all available separately, allowing gradual, economical accumulation of whatever items might be needed for your individual requirements. This also permits owners of Series 99 sets or kits to enlarge them or substitute tools, as necessary, at minimal cost.

Handles



Cat.	N/S No.	Description	Color	"x"/mm x mm	Shelf Pack
99-1 99-1V	48253 48254	Regular	Amber	1½x4½/28x105	6
99-2 99-2V	48257 48258	Junior	Amber	$1\frac{1}{16} \times 3\frac{1}{8} / 27 \times 79$	6
99-3 99-3V	48259 48702	Stubby	Amber	1 ₁₆ x2/30x51	6
99-4 99-4V	48260 48265	Tee	Black	3½×1½/89×41	6

Reversible ratcheting handles



Regular (99-1-R) or Tee (99-4-R) Reversible Ratcheting Handle, which permits extremely simple one-hand operation, even in tight quarters. The recessed reversing shift is easily operated by a flick of the thumb, yet cannot be accidentally tripped by the palm while driving. Light ratcheting drag facilitates turning and prevents fasteners from reversing.

Cat.	N/S No.	Description	Color	"x"/mm x mm	Shelf Pack
99-1-R 99-1-RV	48255 48256	Ratchet	Black	1½x4½/32x114	6
99-4-R 99-4-RV	48263 48264	Tee	Black	3½x1§/89x41	6

Nutdrivers (Inch sizes



Cat. No.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-6 99-6V	48269 48270	3 " 16"	35/92	6
99-7 99-7V	48271 48273	7 " 32"	35/92	6
99-8 99-8V	48274 48278	₫"	35/92	6
99-S8 99-S8V	48239 48703	1"	13/36	6
99-9 99-9V	48279 48281	9 " 32	35/92	6
99-10 99-10V	48282 48284	5 " 16"	35/92	6
99-S10 99-S10V	48240 48704	5 " 16"	13/36	6
99-11 99-11V	48285 48287	11'' 32''	35/92	6
99-12 99-12V	48288 48289	3"	35/92	6
99-S12 99-S12V	48241 48705	3"	13/36	6
99-14 99-14V	48290 48291	7 16"	4/102	6
99-16 99-16V	48292 48293	1/2"	4/102	6

Magnetic nutdrivers Inch sizes



Interchangeable shanks fit all series 99 handles, both regular and ratchet.



Cat. No.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-8M 99-8MV	48275 48277	≟″	3 5/92	6
99-10M 99-10MV	48294 48295	5 "	35/92	. 6

Nutdrivers **Metric sizes**





N/S No.	, mm	Approximate working length mm	Shelf Pack
48261	4	92	6
48262	4.5	92	6
48266	5	92	6
48267	5.5	92	6
48268	6	92	6
48272	7	92	6
48276	8	92	6
48280	9	92	6
48283	10	102	6
48286	11	102	6
	No. 48261 48262 48266 48267 48268 48272 48276 48280 48283	No. mm 48261 4 48262 4.5 48266 5 48267 5.5 48268 6 48272 7 48276 8 48280 9 48283 10	No. mm mm 48261 4 92 48262 4.5 92 48266 5 92 48267 5.5 92 48268 6 92 48272 7 92 48276 8 92 48280 9 92 48283 10 102

Slotted screwdrivers





Cat. No.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-125 99-125V	48337 48338	18"	37/98	6
99-811 99-811V	48344 48345	3 " 16"	37/98	6
99-250 99-250V	48339 48340	ł "	37/98	6
99-312 99-312V	48341 48342	5 " 16"	31/98	6

Phillips 🗘



Cat. No.	N/S No.	″/mm	Approximate working length "/mm	Shelf Pack
99-820 99-820V	48346 48347	No. O	37/98	6
99-821 99-821V	48348 48349	No. 1	37/98	6
99-822 99-822V	48350 48351	No. 2	37/98	6

Pozidriv 😂





Cat. No.	N/S No.	Description	Approximate working length "/mm	Shelf Pack
99-831	48352	No. 1	31/79	6
99-832	48353	No. 2	31/79	6
99-833	48354	No. 3	3½/79	6

Screwdrivers – Allen hex socket type O



Cat. No.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-20	48296	.050"	4/102	6
99-21	48298	16"	4/102	6
99-22	48300	5 "	4/102	6
99-23	48302	3 "	4/102	6
99-764	48310	7 "	4/102	6
99-24	48304	1"	4/102	6
99-964	48311	9 "	4/102	6
99-25	48306	5 " 3 2 "	4/102	6
99-26	48308	3 " 16"	4/102	6

Screwdrivers – Allen hex socket type O

Metric sizes



Cat. No.	N/S No.	mm TO	Approximate working length mm	Shelf Pack
99-71MM	48323	1.27	102	6
91-72MM	48324	1.5	102	6
91-73MM	48325	2.0	102	6
99-74MM	48326	2.5	102	6
99-75MM	48327	3.0	102	6
99-76MM	48328	4.0	102	6
99-77MM	48329	5.0	102	6

Screwdrivers – ballpoint Allen hex socket type O



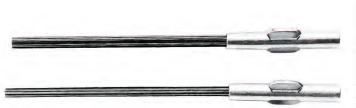
Cat.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-20BP	48297	.050"	4/102	6
99-21BP	48299	16"	4/102	6
99-22BP	48301	5 "	4/102	6
99-23BP	48303	3 "	4/102	6
99-764BP	48343	7 "	4/102	6
99-24BP	48305	1"	4/102	6
99-964BP	48355	9 " 64"	4/102	6
99-25BP	48307	5 " 3 2	4/102	6
99-26BP	48309	3 "	4/102	6

Screwdrivers – ballpoint Allen hex socket type O Metric sizes



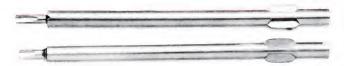
Cat. No.	N/S No.	mm T	Approximate working length mm	Shelf Pack
99-71MMBP	48330	1.27	102	6
99-72MMBP	48331	1.5	102	6
99-73MMBP	48332	2.0	102	6
99-74MMBP	48333	2.5	102	6
99-75MMBP	48334	3.0	102	6
99-76MMBP	48335	4.0	102	6
99-77MMBP	48336	5.0	102	6

Screwdrivers – Bristol 6-flute multiple spline O



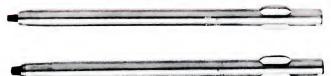
Cat.	N/S No.	Description		Approximate working length "/mm	Shelf Pack
99-61	48314		0.048/1.22	4/102	6
99-62	48315		0.060/1.52	4/102	6
99-63	48316	4 flute	0.069/1.75	4/102	6
99-64	48317		0.072/1.82	4/102	6
99-65	48318	4 flute	0.076/1.93	4/102	6
99-66	48319		0.096/2.43	4/102	6
99-67	48320		0.111/2.82	4/102	6
99-68	48321		0.145/3.68	4/102	6
99-69	49322		0.183/4.65	4/102	6

Screwdrivers – clutch head



Cat.	N/S No.	inches	Approximate working length "/mm	Shelf Pack
99-G-316	48220	3 " 16"	37/98	6
99-G-532	48221	5 " 3 2	37/98	6

Screwdrivers – scrulox O



Cat. No.	N/S No.	Description	Approximate working length "/mm	Shelf Pack
99SL-0	48243	No. O	4/102	6
99SL-1	48244	No. 1	4/102	6
99SL-2	48245	No. 2	4/102	6
99SL-3	48246	No. 3	4/102	6

Reamer



Cat.	N/S		Approximate working length "/mm	Shelf Pack	
99-38 99-38V	48312 48313	1/8 x 3/3.17 x 9.52	4½/105	6	

Extensions

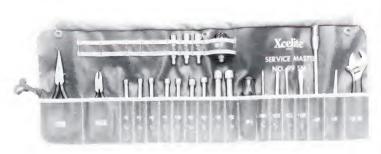


Cat. No.	N/S No.	Description	Approximate working length "/mm	[″/mm	Shelf Pack
99-X5 99-X5V	48250 48251	Adds	4/102	4/102	6
99-X10 99-X10V	48252 48706	Adds	7/178	7/178	6

Series 99 service kits

Series 99 service kits and sets are made up primarily of various screwdriver, nutdriver and other blades which can be used interchangeably in series 99 handles. All blades are high carbon steel with highly polished finish except Bristol and Allen Hex types which are precision formed, cold drawn, case hardened steel. Plastic handles have patented spring device that holds blades firmly, yet permits quick, easy insertion and removal. Regular handles accommodate all blades, single and reversible. Stubby, Tee and Ratchet handles can be used only with single-end blades.

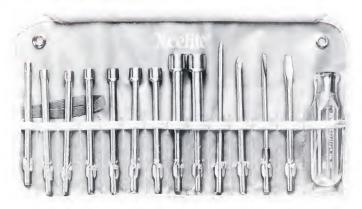
99SM Service master roll kit



Versatile twenty-three piece set of quality tools in a durable, roll-up plastic coated canvas case which weighs only $1247g/2\frac{3}{4}lbs$. Provides a variety of quick change tools and tool combinations to speed up assembly and service work.

Cat.	N/S	Description	Shelf
No.	No.	"/mm	Pack
52CG	48154	6/152 Long nose cushion grip plier	6
55CG	48160	5/127 Diagonal cushion grip plier	6
46CG	48146	6/152 Thin-pattern cushion grip adjustab	le wrench 6
99-1	48253	Regular handle	6
99-3	48259	Stubby handle	6
99-6 to 99-16		Regular nutdrivers (9)	
99-S8, 99-S10,		Stubby nutdrivers	
99-S12			
99-821, 99-822		Phillips screwdrivers	
99-811, 99-250		Slotted screwdrivers	
99-38	48312	Reamer	6
99-X-10	48252	Extension	6
99SM	48247	Complete roll kit	1
99SMK	48248	Canvas case	1

99PR Roll kit



Multi-purpose, fourteen piece nut and screwdriver set.

N/S		Shelf
No.	Description	Pack
48253	Regular handle	6
	Nutdrivers	
	Slotted screwdrivers	
	Phillips screwdrivers	
48226	Complete roll kit	1
48222	Canvas case	1
	No. 48253 48226	No. Description 48253 Regular handle Nutdrivers Slotted screwdrivers Phillips screwdrivers 48226 Complete roll kit

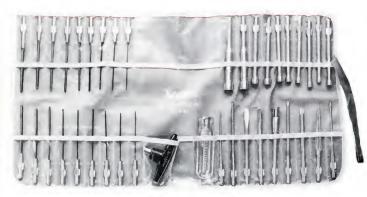
99SMW Service kit



Plastic-coated canvas case holds 26-piece set of handles and interchangeable screwdriver, nutdriver and other blades plus wire stripper and cutter and Weller soldering iron.

Cat.	N/S		Shelf
No.	No.	Description	pack
WP25		Soldering iron	
ST3		Tip	
100-X	48356	Wire stripper and cutter	6
52-CG	48154	6"/152mm Long nose cushion grip pliers	6
55-CG	48160	5"/127mm Diagonal cushion grip pliers	6
46-CG	48146	6"/152mm Thin-pattern cushion grip adjust wrench	able 6
99-1	48253	Regular handle	6
99-3	48259	Stubby handle	6
99-6 to 99-16		Regular nutdrivers (9)	
99-821, 99-822		Phillips screwdrivers	
99-S8, 99-S10, 99-S12		Stubby nutdrivers	
99-811, 99-250		Slotted screwdrivers	
99-38	48132	Reamer	6
99-X -10	48252	Extension	6
99SMW	48684	Complete kit	1
99SMWK	48685	Canvas case	1

99MP Multi-purpose tool kit



All the most popular series 99 tools are readily available in this convenient thirty-nine piece kit. Plastic coated canvas case folds into a compact package which is quickly secured by means of a permanently attached loop. No tying required. Two extra pockets permit addition of pliers, snips or other tools.

Cat. No.	N/S No.	Description	Shelf pack
99-1	48253	Regular handle	6
99-4	48260	Tee handle	6
99-8M	48275	Magnetic nutdriver	6
99-6 to 99-16		Regular nutdrivers (9)	
99-20 to 99-26		Allen hex screwdrivers (9)	
99-61 to 99-69		Bristol multiple spline screwdrivers (9)	
99-125, 99-811, 99-250, 99-312		Slotted screwdrivers	
99-820, 99-821, 99-822		Phillips screwdrivers	
99-38	48312	Reamer	6
99-X5	48250	Extension	6
99MP	48223	Complete kit	1
99MPK	48224	Canvas case	1

99SL Scrulox screwdriver kit



Plastic view case, 6 piece set.

Cat. No.	N/S No.	Description	Shelf pack
99-1	48253	Regular handle	6
99SL-0, 1, 2, 3		Scrulox screwdrivers	
99-250	48339	Slotted screwdriver	6
99SL	48242	Complete kit	1

99-TR-5 Interchangeable – blade tool kit



Basic maintenance kit contains 5 interchangeable series 99 blades which easily snap in and out of patented spring chuck in regular series 99 handle, yet are firmly retained. Packed in handy plastic view case. Handle and individual blades also available separately.

Cat.	N/S No.		Shelf Pack
99-1	48253	Regular handle	6
99-8	48274	¼" Hex socket nutdriver	6
99SL-1	48244	No. 1 Scrulox square recess screwdriver	6
99SL-2	48245	No. 2 Scrulox square recess screwdriver	6
99-G-316	48220	3" Clutch-head screwdriver	6
99-G-532	48221	532" Clutch-head screwdriver	6
99-TR-5	48249	Complete set	3

Series 99 compact interchangeable-blade sets 99PS-40BP Ballpoint Allen hex socket type screwdriver set



Unique "ballpoint" tip ideal for tightening and removing Allen type socket head screws in spots where you can't reach them straight-on or want an easier, quicker way to drive them home. Will engage screw head from any angle. Slip easily into sockets and hold securely without reaming, because ends are precision machined to close tolerances. 9 blades 4"/101.60mm long, 99-X5 extension, and regular 99-1 handle in stand-up, see-through plastic case.

				01 16
Cat.	N/S		← L →	Shelf
No.	No.	Tip size	"/mm	Pack
99-20BP	48297	.050	4/102	6
99-21BP	48299	1 6	4/102	6
99-22BP	48301	5 6 4	4/102	6
99-23BP	48303	3 3 2	4/102	6
99-764BP	48343	7 64	4/102	6
99-24BP	48305	18	4/102	6
99-964BP	48355	9	4/102	6
99-25BP	48307	5 3 2	4/102	6
99-26BP	48309	3 16	4/102	6
99-1	48253	Regular handle	4/102	6
99-X5	48250	Extension	4/102	6
99PS-40BP	48229	Complete set		3
99PS-40BPV	48230	Complete set carded		3

99PS-41MMBP Ballpoint Allen hex socket type screwdriver set Metric sizes



Interchangeable blade ballpoint hex socket screwdriver set. Approximate working length — 101.60mm. Includes: — 7 drivers, 101.60mm 99-X5 extension, regular 99-1 handle, and flexible plastic, see-through stand-up case.

Cat.	N/S No.	mm ·	mm	Shelf Pack
99-71MMBP	48330	1.27	102	6
99-72MMBP	48331	1.5	102	6
99-73MMBP	48332	2.0	102	6
99-74MMBP	48333	2.5	102	6
99-75MMBP	48334	3.0	102	6
99-76MMBP	48335	4.0	102	6
99-77MMBP	48336	5.0	102	6
99-1	48253	Regular handle	102	6
99-X5	48250	Extension	102	6
99PS-41MMBP	48233	Complete set		3

99PS-40 Allen hex socket type screwdriver set

Inch sizes



Eleven-piece set in compact see-through plastic case.

Cat. No	N/S No.	O _x inches	← L→ "/mm	Shelf Pack
99-1	48253	Regular handle	_	6
99-20	48296	.050"	4/102	6
99-21	48298	1 "	4/102	6
99-22	48300	54 "	4/102	6
99-23	48302	3 2 "	4/102	6
99-764	48310	7 64	4/102	6
99-24	48304	1 "	4/102	6
99-964	48311	9 "	4/102	6
99-25	48306	5 3 2 "	4/102	6
99-26	48308	3 "	4/102	6
99-X5	48250	Extension	4/102	6
99PS-40	48227	Complete set	_	3
99PS-40V	48228	Complete set carded		3

99PS-41MM Compact, interchangeable blade Allen hex socket

type screwdriver set Metric sizes



Approximate working length 101.60mm. Fits the hex socket screws shown below.

99-X5 Extension adds 101.60mm.

99-1 Handle 26.99mm x 104.78mm.

Cat.	N/S	Ŏ	Set screws	Socket head cap screws thread diameter	Flat head cap screws thread diameter
No.	No.	mm	mm	mm	mm
99-71MM	48323	1.27	2.6	1.4	_
99-72MM	48324	1.5	3	1.7,2	
99-73MM	48325	2	4	2.3, 2.6	3
99-74MM	48326	2.5	5	3	4
99-75MM	48327	3	6	4	5
99-76MM	48328	4	8	5	6
99-77MM	48329	5	10	6	8
99-1	48253	_	Reg. handle	_	
99-X5	48250	_	Extension	_	
99PS-41MM	48231	_	Complete set		

99PS-50 Screwdriver and nutdriver set

Inch sizes



Thirteen-piece set in stand-up, plastic case with see-through cover.

Cat.	N/S	Description	-O -	← L →	Shelf Pack
No.	No.	Description	inches	"/mm	Pack
99-6	48269	Regular nutdriver	16"	35/92	6
99-7	48271	Regular nutdriver	732"	35/92	6
99-8	48274	Regular nutdriver	1 "	35/92	6
99-9	48279	Regular nutdriver	9 " 3 2	35/92	6
99-10	48282	Regular nutdriver	5 "	35/92	6
99-11	48285	Regular nutdriver	11"	35/92	6
99-12	48288	Regular nutdriver	3"	35/92	6
99-811	48344	Slotted screwdriver	3"	$3\frac{7}{8}/98$	6
99-250	48339	Slotted screwdriver	1"	37/98	6
99-821	48348	Phillips screwdriver	No. 1	$3\frac{7}{8}/98$	6
99-822	48350	Phillips screwdriver	No. 2	$3\frac{7}{8}/98$	6
99-X5	48250	Extension	_	4/102	6
99-1	48253	Regular handle	_	4/102	6
99PS-50	48223	Complete set	_		3
99PS-50V	48234	Complete set carded	_	_	3

99PS-51MM Compact, interchangeable shank, nutdriver set

Metric sizes



Twelve-piece set in stand-up, plastic case with see-through cover.

Cat. No.	N/S No.	Ť mm	Approx. working length mm	Hex head cap screws thread diameter mm	Hex nuts thread diameter mm	Shelf Pack
99-4MM	48261	4	92.08	_	2	6
99-4.5MM	48262	4.5	92.08	_	2.3	6
99-5MM	48266	5	92.08	2.6	2.6	6
99-5.5MM	48267	5.5	92.08	3	3	6
99-6MM	48268	6	92.08	3.5	3.5	6
99-7MM	48272	7	92.08	4	4	6
99-8MM	48276	8	92.08	5	5	6
99-9MM	48280	9	92.08	_	_	6
99-10MM	48283	10	101.60	6	6	6
99-11MM	48286	11	101.60	7	7	6
99-1	48253	Regular handle	101.60	_		6
99-X5	48250	Extension	101.60	_	_	6
99PS-51MM	48235	Complete set	_	_	_	3
99PS-51MMV	/48236	Complete set ca	rded —		_	3

99PS-60 Bristol multiple-spline socket type screwdriver set

Inch sizes



Eleven-piece set in stand-up, plastic case with see-through cover.

Cat.	N/S No.		 ″/mm	Shelf Pack
99-61	48314	.048	4/102	6
99-62	48315	.060	4/102	6
99-63	48316	.069	4/102	6
99-64	48317	.072	4/102	6
99-65	48318	.076	4/102	6
99-66	48319	.096	4/102	6
99-67	48320	.111	4/102	6
99-68	48321	.145	4/102	6
99-69	48322	.183	4/102	6
99-1	48253	Regular handle	4/102	6
99-X5	48250	Extension	4/102	6
99PS-60	48237	Complete set	_	3
99PS-60V	48238	Complete set carded		3

Pliers and cutters With red cushion grip handles

The exceptional strength and performance of Xcelite pliers and cutters are the result of forged alloy steel construction, precision machining, and scientific proportioning. Handles are designed to fit the hand comfortably and to provide maximum leverage. Cleanly milled and perfectly aligned jaws grip tightly and surely while easy cutting is assured by hand-honed, mated cutting edges. For extra working comfort all models have permanent, red plastic-coated "Cushion-Grip" handles except Combination Slip Joint pliers.

Diagonal pliers **54CG**



Midget size for work at close quarters.

Cat.	N/S	← L→	Shelf
No.	No.	"/mm	Pack
54CG 54CGV	48158 48159	4/102	6

55CG



Pliers for most cutting needs.

Cat.	N/S	← L →	Shelf
	No.	"/mm	Pack
55CG 55CGV	48160 48161	5/127	6

64CG



For fast, clean, easy tip cutting of fine wires in close quarters.

Cat.	N/S No.	← - → "/mm	Shelf Pack
64CG	48175		
64CGV	48176	4/102	6

66CG



All purpose diagonal pliers.

Cat.	N/S No.	←	Shelf Pack
66CG 66CGV	48177 48178	6/152	6

67CG



Diagonal pliers for heavy duty cutting.

Cat.	N/S	←- - -	Shelf
No.	No.	″/mm	Pack
67CG 67CGV	48179 48180	7/178	6

Needle nose pliers



Long slim jaws permit entry inaccessible to regular long nose pliers.

Cat.	N/S	← L →	Shelf
	No.	"/mm	Pack
56CG 56CGV	48162 48163	6/152	6

57CG



Pliers with fine serrated jaws and coil spring for firm gripping and looping of wire.

Cat.	N/S	←-L→	Shelf
	No.	"/mm	Pack
57CG 57CGV	48164 48165	5½/140	6

Long nose pliers 41CG

Midget pliers, serrated jaws, without side cutters.

Cat.	N/S	←	Shelf	
No.	No.	″/mm	Pack	
41CG 41CGV	48138 48139	4/102	6	



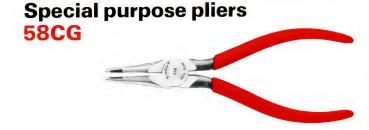
Long nose pliers with side cutters.

Cat.	N/S	⊷	Shelf
No.	No.	″/mm	Pack
51CG 51CGV	48152 48153	6/152	6



Long nose pliers without side cutters.

Cat.	N/S	←└→	Shelf
	No.	"/mm	Pack
52CG 52CGV	48154 48155	6/152	6



Special electronic pliers with extreme tip for gripping. Sharp $\frac{5}{16}$ "/8mm cutting edges $\frac{3}{16}$ "/4.7mm back from tip.

Cat.	N/S	⊷	Shelf	
No.	No.	″/mm	Pack	
58CG 58CGV	48166 48167	6/152	6	



Chain nose electrician's pliers with long reach and high leverage.

Cat.	N/S	←-└	Shelf
No.	No.	"/mm	Pack
59CG	48168	8/203	6
59CGV	48169	0/203	0

Utility pliers

50CG Ignition pliers



Midget slip joint with narrow jaws for close work. 3-jaw opening adjustment to $\frac{1}{2}$ "/12.7mm.

		← L→	70	01.11
Cat.	N/S	[4 = 1]		Shelf
No.	No.	"/mm	"/mm	Pack
50CG	48150	5/127	$\frac{1}{2}/12.7$	6
50CGV	48151	0.72.	2	

53CG Tongue and Groove pliers



All purpose pliers with 5-position forged rib lock design and serrated jaws. Maximum opening $1\frac{1}{16}''/27$ mm.

Cat.	N/S No.	←-⊾ "/mm	″/mm	Shelf Pack
53CG 53CGV	48156 48157	7/178	$1\frac{1}{16}/27$	6

63CG Tongue and Groove pliers



Forged rib lock design and serrated jaws. Adjusts to 4 positions. Maximum opening $1\frac{1}{2}$ "/38mm.

Cat.	N/S No.	← ↓ → " /mm	″/mm	Shelf Pack
63CG 63CGV	48173 48174	10/250	1½/38	6



With serrated upper and lower jaws for firm gripping.

Cat.	N/S	←L→	Shelf
	No.	"/mm	Pack
60CG 60CGV	48171 48170	6/150	6



With serrated jaws. Longer size gives firmer grip and more leverage for cutting heavy wire.

Cat.	N/S	[← L→[Shelf
No.	No.	"/mm	Pack
68CG	48181	8/200	6
68CGV	48182	6/200	0

Combination slip joint pliers



75C—Chrome-plated pliers in handy small size.

76C—Chrome-plated pliers for general use.

78C—Sturdy, chrome-plated pliers for heavy duty use.

Cat. No.	N/S No.	⊷→ ″ /mm	Shelf Pack	
75C 75CV	48196 48197	5/127	6	
76C 76CV	48198 48199	6/150	6	
78C 78CV	48200 48201	8/200	6	

How to select cutting pliers





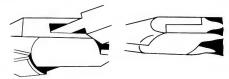
Thickness of head

Head thickness determines the life of a cutting tool in much the same way as head shape. Thin cutters are often purchased for cosmetic reasons when a thicker cutter would do the job just as well. The same rule applies as in head shape. The cutter life is directly proportional to the thickness.



Let there be light

High pecision cutters are finished so that they will meet exactly at the point. If you hold a good pair of diagonal cutters up to the light you should see an increasing amount of light towards the back of the fulcrum of the cutter. Since most cutting is done at the tip, this increases cutter life by allowing the tips to continue to meet after some wear. Larger cutters (over 5" long) may meet all the way down the blade, as less tip cutting is done with larger cutters.



Leverage ratio

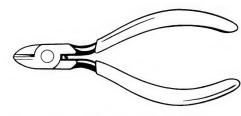
A pair of cutting pliers is a lever with the fulcrum point at the center of the joint. The mechanical advantage of the lever is expressed as a ratio by dividing length A into length B. Cutters with the largest mechanical advantage will generally last the longest.

Cuts per dollar

Cutting pliers have only one purpose...to cut wire. Proper selection of cutters will insure that the tools in your plant will cut the wire you need to cut, where you need to cut it and most importantly, will give you the maximum number of cuts per dollar spent. Once the physical size and shape of a cutter have been determined by the mechanical aspects of the cutting problem, the economic justifications and selections should be based upon the number of cuts per dollar.

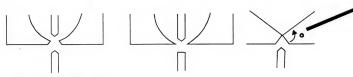
To determine the total cost of pliers, you should add the initial purchase cost to the cost of resharpening or repairing. Divide that number into the number of cuts you can expect to obtain (determined by test) and you will have a figure that will put all cutters into perspective.

Cuts per dollar will make your final determination, but on this page we offer some hints for cutter selection that will help you narrow down the number of cutters necessary to test.



Buy big

Probably the costliest mistake most often made in selecting cutters is to buy them too small. It is easy for a craftsman to be attracted to tiny precision cutters under 4" in length. Much electronic assembly work is done by women, and they seem to prefer a small cutter that "feels good" in their hand. However, the number of cuts obtainable from a cutter is almost directly proportional to the square of the weight of the cutting head. Allowing economical factors to put four inch cutters where five inch cutters will do the job, can reduce the number of expected cuts in half. Since four inch cutters cost more, the cuts per dollar ratio will be increased substantially. The rule of thumb is always the largest cutter that you can use for the job at hand.



Angle of cutter

Most companies offer different cutting blades described as flush, full flush, regular, etc. This refers to the angle shown in the above illustration looking straight at the end of the cutter. Flush cutters are designed to reduce the amount of "pinch" left on the cut wire. They also tend to reduce the amount of shock transmitted up the wire to the component body. Flush cutters should only be specified where they are necesary for one of these purposes. A good rule of thumb here is the greater the angle Theta, the more cuts available from the tool.



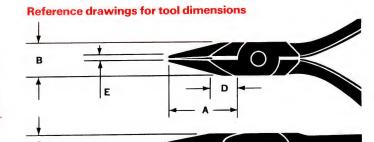


Shape of head

Often, pointed or narrow head cutters are chosen for the same reasons that small cutters are popular. A pointed head, however, greatly reduces the expected life of the cutter. With cutters of the same size a round head will outlast a pointed head almost two to one. Pointed head cutters should be used only where necessary because of access problems to the work. The more material behind the cutting blade, the greater the number of cuts that can be expected.

Miniature electronic pliers With blue cushion grip handles

These small, lightweight pliers are designed primarily for holding, bending and cutting fine wires in electronic, radio, TV, electrical and even jewelry work. Equipped with comfortable, plastic coated cushion grip handles and coil spring openers. All standard with blue cushion-grip handles, polished head end spring opening.





These pliers are particularly designed for fine, close electrical and mechanical work. Ideal for electricians, jewelers, opticians and hobbyists.

Cat.	N/S	←	A	B	C	E	Shelf
	No.	"/mm	"/mm	"/mm	"/mm	" x" /mm x mm	Pack
162CG 162CGV	48707 48708	4/100	$1\frac{1}{16}/27$	$\frac{15}{32}/12$	1/6	$\frac{3}{32} \times \frac{1}{16} / 1.15 \times 1.58$	6



These pliers are particularly designed for gripping and holding and so have no cutting edge.

Cat.	N/S	←	A	B	C	E	Shelf
No.	No.	"/mm	"/mm	"/mm	"/mm	" x" /mm x mm	Pack
70CG 70CGV	48185 48186	4½/114	11/28	3 16/11	1/6	$\frac{1}{16} \times \frac{1}{4} / 1.55 \times 6$	6



Carefully rounded on both sides of nose and precision ground to a fine point for looping and forming fine wires.

Cat.	N/S	←┖→	A	B	C	E	Shelf
	No.	"/mm	″/mm	"/mm	"/mm	"/mm	Pack
71CG 71CGV	48187 48188	4½/114	½/22	$\frac{15}{32}/12$	1/6	3 64/1.15 dia.	6

Midget chain nose



Slim streamlined pliers with fine serrations or smooth jaws plus slightly bevelled inside edges. Excellent for subminiature electronic assembly work. 72CG has plain jaws.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	E "x"/mm x mm	Shelf Pack
72CG 72CGV	48189 48190	4½/114	11/28	$\frac{7}{16}/11$	1/6	$\frac{3}{64} \times \frac{1}{16} / 1.18 \times 1.58$	6
77CG 77CGV	48709 48710	4½/114	11/28	7 16/11	1/6	$\frac{3}{64} \times \frac{1}{16} / 1.18 \times 1.58$	6

Short nose tip cutting



 $45\,^{\circ}$ angle tip cutter with semi-flush edge for cutting in restricted areas in electronic components and for trimming printed circuit boards.

Cat.	N/S	←-	A	B	C	E	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	"/mm	Pack
73CG 73CGV	48192 48193	4½/114	1/25	$\frac{7}{16}/11$	½/6	$\frac{3}{32}/6$	6





 $5^{\prime\prime}/125$ mm pliers with fine serrated jaws. 60° angle thin bent nose for handling fine wire in close quarters.

Cat.	N/S	←	A	B	C	E	Shelf
No.	No.	"/mm	"/mm	"/mm	"/mm	"/mm	Pack
79CG 79CGV	48202 48203	5/127	1/25	$\frac{7}{1.6}/1.1$	5 16/8	1/6/1.58	6

Long chain nose with side cutter



Spring tempered, fine serrated jaws with hardened jaw surfaces and electronically hardened cutter edges are ideal for electronic sub-assembly work.

Cat.	N/S	←	A	B	C	D	E	Shelf
	No.	"/mm	"/mm	"/mm	"/mm	"/mm	"/mm	Pack
81CG 81CGV	48206 48207	5½/140	13/44	$\frac{17}{32}/13$	$\frac{9}{32}/7$	$\frac{13}{32}/10$	$\frac{1}{16}/1.58$	6

Long chain nose



Spring tempered, fine serrated jaws with slightly bevelled inside edges are specially designed for gripping small wire components.

Cat.	N/S No.	← L→ ″/mm	A "/mm	B "/mm	C "/mm	E	Shelf Pack
82CG 82CGV	48208 48209	5½/140	13/44	$\frac{17}{32}/5$	$\frac{9}{32}/7$	1/1.58	6

Very fine needle nose



Fine serrations on jaws. 1"/25mm nose length. Slightly bevelled inside edges.

Cat.	N/S	← ⊾→	A	B	C	E	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	"/mm	Pack
87CG 87CGV	48712 48713	5½/140	17/48	$\frac{15}{32}/12$	1/6	$\frac{5}{64}/1.70$	6

Extra thin long needle nose



Spring tempered jaws, precision machined to a fine point. Plain jaws. Slightly bevelled inside edges.

Cat.	N/S	←	A	B	C	E	Shelf
	No.	"/mm	"/mm	"/mm	"/mm	"x"/mm x mm	Pack
90CG 90CGV	48714 48715	4½/114	11/28	$\frac{7}{16}/11$	1/6	$\frac{3}{64} \times \frac{1}{16} / 1.18 \times 1.58$	6

Extra thin long needle nose



Spring tempered jaws, precision machined to $\frac{5}{64}''/2$ mm at the extreme tip. Fine serrated jaws. Slightly bevelled inside edges.

Cat.	N/S	← ∟→	A	B	C	E	Shelf
	No.	″/mm	″/mm	"/mm	"/mm	"/mm	Pack
91CG 91CGV	48716 48717	6/150	$2\frac{1}{3}\frac{1}{2}/60$	$\frac{15}{32}/12$	1/6	5/1.90 dia.	6

Tip cutter wiring



For delicate, intricate, sub-assembly work. Fine serrated tips. Hardened cutting edge near top for snap cutting No. 22 gauge (0.025" dia.) and smaller soft copper wire.

Cat. No.	N/S No.	←└→ ″/mm	A "/mm	B "/mm	C "/mm	D "/mm	E "x"/mmxmm	Shelf Pack
92CG 92CGV	48718 48719	41/114	11/28	$\frac{7}{16}/11$	1/6	$\frac{5}{32}/4$	$\frac{3}{64} \times \frac{3}{32} / 1.18 \times 2.38$	6
69CG 69CGV	48183 48184	5/127	1 ⁵ /29	½/13	5 16/8	1/6	$\frac{1}{16} \times \frac{3}{32} / 1.58 \times 2.38$	6

Cutting and looping



For cutting and forming wire. Cutter near tip for cutting No. 20 gauge (.032" dia.) and smaller soft copper wire.

Cat.		← "/mm				D "/mm	E "x"/mmxmm	Shelf Pack
94CG 94CGV	48720 48721	6/150	13/30	$\frac{11}{16}/17$	$\frac{1}{3}\frac{1}{2}/9$	1/6	$\frac{3}{32} \times \frac{5}{32} / 2.38 \times 3.96$	6

Special taper nose diagonal



Slim taper nose design with semi-flush cutting edges for heavy duty work in electronics industry. Specially designed for close quarters tip cutting.

Cat.	N/S	←	A	B	C	Shelf
	No.	"/mm	"/mm	"/mm	"/mm	Pack
95CG 95CGV	48214 48215	5/127	11/17	9/14	3/10	6

Midget semi-flush cutting



Precision honed flush-edges and back clearance fine tapered nose designed for close cutting No. 24 gauge (0.020" dia.) and smaller soft copper wire. The very fine tapered nose with back taper at extreme tip is ideal for delicate electronic circuitry work.

Cat.	N/S	←	A	B	C	Shelf
	No.	"/mm	"/mm	"/mm	"/mm	Pack
74CG 74CGV	48194 48195	4/100	$\frac{15}{32}/12$	$\frac{7}{16}/11$	1/6	6

Midget full-flush cutting



Fine tapered nose with back taper at extreme tip. Full-flush cutting edges for cutting No. 20 gauge (.032" dia.) and smaller soft copper wire. Snap cuts at extreme tip.

Cat.	N/S	←	A	B	C	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	Pack
84CG 84CGV	48211 48210	4/100	$\frac{15}{32}/12$	$\frac{3}{16}/11$	1/6	6



Slim round nose design with electronically hardened edges. Mostused regular small diagonal cutting pliers for fine work. Will cut No. 20 gauge (.032" dia.) and smaller soft copper wire.

Cat.	N/S	←-⊾	A	B	C	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	Pack
98CG 98CGV	48722 48723	4/100	1/13	3/11	1/6	6



Small round nose diagonal cutting plier with electronically hardened edges. Primarily for general purpose cutting in the electronics industry.

Cat.	N/S No.	← "/mm	A "/mm	B "/mm	C "/mm	Shelf Pack
106CG 106CGV	48724 48725	4½/114	11 /17	15/12	$\frac{1}{3}\frac{1}{2}/9$	6
107CG 107CGV	48726 48727	5/127	11 /17	9/14	₹/10	6

Diagonal full-flush cutting



Tapered nose diagonal pliers with back clearance for use in confined areas. Hand-honed full-flush edges with back taper at extreme tip. Heavy pattern joint for long life. Ideal for printed circuit and other electronic applications. Will cut No. 20 gauge (.032" dia.) and smaller soft copper wire.

Cat.	N/S	←-⊾	A	B	C	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	Pack
108CG 108CGV	48728 48729	4½/114	$\frac{11}{16}/17$	$\frac{15}{32}/12$	11/9	6

Diagonal cutting



Precision honed flush-edges and back clearance. Fine tapered nose designed for close cutting No. 24 gauge (.020" dia.) and smaller soft copper wire. The very fine tapered nose with back taper at extreme tip is ideal for delicate electronic circuitry work.

Cat.	N/S	←- -	A	B	C	Shelf
No.	No.	″/mm	"/mm	"/mm	"/mm	Pack
109CG 109CGV	48730 48731	4/100	$\frac{15}{32}/12$	3 ₁₆ /11	1/6	6

Midget angled flush cutting



Electronically hardened edges, polished head. Deep throated pliers enable longer pieces of wire to be cut. Edges are full flush and are recommended for snap-cutting soft non-ferrous wire. Back of pliers is angled at 29° for cutting ease in difficult areas.

Cat.	N/S	←↓→	A	B	C	D	Shelf
No.	No.	"/mm	"/mm	"/mm	"/mm	"/mm	Pack
111CG* 111CGV	48857 48858	4/100	$\frac{7}{1.6}/1.1$	⁷ / ₁₆ /11	1 /6	₹/9.5	6

Stainless diagonal cutting



Made of the same type of stainless steel used for the finest surgical instruments, this pliers design is a completely new cutting tool. Cutting edges are machine ground to achieve a precise angle for continuous snap cutting. Designed for cutting and trimming circuit boards and lead wires on capacitors and other electronic components. Standard with blue cushion-grip handles, satin finish head and shoulders and spring opening.

Maximum cutting specifications:

Soft non-ferrous wire: .032" (8mm) dia. Soft steel wire .018 dia (45mm).

Cat.	N/S	←	A	B	C	Shelf
	No.	″/mm	"/mm	"/mm	"/mm	Pack
110CG 110CGV	48711 48733	4/100	$\frac{15}{32}/12$	$\frac{7}{16}/11$	$\frac{9}{32}/7$	6

Electronic shears with cushion grip handles 96CG

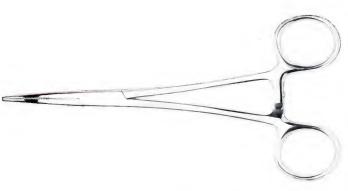


5"/127mm professional quality shears whose light weight (4oz/113gm) and sharp durable cutting edges permit easy flush-cutting of wire up to 14AWG. Comfortable grips and positive spring action enhance speed and efficiency of production or servicing without operator fatigue. Slim-line contour of cutting tips provides easy access to tight work areas.

Identical to 96CG, but including special "Klip Grip" which holds cut-off wires, promoting safety and cleaner work area.

Cat. No.	N/S No.	←-⊾→ "/mm	Shelf Pack
96CG 96CGV	48216 48217	5/127	6
97CG 97CGV	48218 48219	5/127	6

Special tools for special problems Seizer



Versatile tool with unusual holding qualities. Clamps firmly to hold wires for soldering, acts as a heat sink — and retrieves small parts from hard-to-reach places. Seizers have 3-position snap lock, serrated jaws and box-joint construction. Precision machined from perfectly tempered stainless steel.

Cat.	N/S No.	Description	Shelf Pack
32H 32HV	48134 48135	Straight nose jr. seizer, smooth jaws	6
33H 33HV	48136 48137	Curved nose jr. seizer, smooth jaws	6
42H 42HV	48140 48141	Straight nose seizer, serrated jaws	6
43H 43HV	48142 48143	Curved nose seizer, serrated jaws	6

Wire strippers and cutters with cushion grip handles 100X



Has adjustable screw stop for different wire sizes. Cuts and strips both solid and stranded wire cleanly, neatly.

Hardened with ground blades.

101-S-specifications same as 100X except with spring-equipped self-opening handles.

Cat.	N/S No.	Description	← L → "/mm	Shelf Pack
100X 100XV	48356 48357	Stripper, cutter	5/127	6
101-S 101-SV	48358 48359	Stripper, cutter-spring opening	5/127	6



Unique cam stop adjustment for different wire sizes. Cam adjustment stays put, will not move, even with screw loose. Fine for industrial use.

Cat.	N/S	←└→	Shelf
	No.	"/mm	Pack
103-S 103-SV	48360 48361	51/133	6

104CG wire stripper and cutter



Cutter stripper and crimper for all types and sizes of wire, with a wide size-range bolt cutter. Features scissors action up-front wire cutting and wire stripping, bolt cutters, cushion grips, pliers nose, hardened pivot joint bushing and crimp stations.

Cat.	N/S	← └ →	Shelf
No.	No.	" /mm	Pack
104CG 104CGV	48682 48683	81/210	6

105CG Electrical pliers



Wire cutting and stripping edges are conveniently located in front of the pivot to allow use in tight places. Serrated edge, needle nose pliers add wire pulling and bending capability to the tool. Scissoraction stripper cams insulation for cleaner, faster, more accurate stripping. 105SCG has work-speeding automatic spring.

Cat.	N/S		←-L-→	Shelf
No.	No.	Description	"/mm	Pack
105CG 105CGV	48697 48698	Stripper, cutter	6/150	6
105SCG 105SCGV	48699 48700	Stripper, cutter-spring opening	6/150	6

Snips



86 CG-electronic snip. Shearing action of $1\frac{1}{2}^{\prime\prime}/38 mm$ cut pointed blades prevents peaks on fine wires and filaments. Useful also for removing insulation and cutting light sheet metal. Coil spring opens blades, latch holds them closed. Cushion-grip handles.

Cat	N/S	←└→	i⇒<	Shelf
No.	No.	"/mm	″/mm	Pack
86CG 86CGV	48212 48213	6½/165	1½/38	6

XL-70 Offset ratchet screwdriver set



19 piece midget reversible ratchet offset all-purpose screwdriver set. Simple and easy-to-use in all kinds of assembly, disassembly, adjustment and repair work involving Allen hex, Phillips and slotted screws.

All driver bits: $\frac{1}{4}$ "/6mm hex shank.

Cat.	N/S	<u>-</u> O		Shelf
No.	No.	"/mm	Description	Pack
XL-3	48650	.050/1.27	Allen hex screw bit	6
XL-4	48651	$\frac{1}{16}/1.54$	Allen hex screw bit	6
XL-5	48652	5/64/1.98	Allen hex screw bit	6
XL-6	48653	$\frac{3}{32}/2.38$	Allen hex screw bit	6
XL-7	48654	$\frac{7}{64}/2.78$	Allen hex screw bit	6
XL-8	48655	½/3.17	Allen hex screw bit	6
XL-9	48656	9 64/3.57	Allen hex screw bit	6
XL-10	48657	⁵ /3.97	Allen hex screw bit	6
XL-12	48658	$\frac{3}{16}/4.76$	Allen hex screw bit	6
XL-14	48659	$\frac{7}{32}$ /5.56	Allen hex screw bit	6
XL-16	48660	½/6	Allen hex screw bit	6
XL-17	48661	1/6	Slotted screw bit	6
XL-18	48662	5/7.94	Allen hex screw bit	6
XL-20	48663	No. 1	No. 1 Phillips screw bit	6
XL-21	48664	No. 2	No. 2 Phillips screw bit	6
XL-24	48665	61/6 hex to 1/6 square	Adaptor bit	6
XL-25	48666	$\frac{3}{16}$ /4.76	Slotted screw bit	6
XL-27	48667	_	Reversible ratchet	6
XL-50	48668	_	Spinner-extension	6
XL-70	48669		Complete set	1

XL-75 Offset ratchet screwdriver set



Five-piece set in see-through plastic pouch. All driver bits: $\frac{1}{4}$ "/6mm hex shank.

Cat. No.	N/S No.	Description	Shelf Pack
XL-25	48666	Slotted screw bit 3"/4.76mm	6
XL-17	48661	Slotted screw bit ¼"/6mm	6
XL-20	48663	Phillips screw bit No. 1	6
XL-21	48664	Phillips screw bit No. 2	6
XL-27	48667	Reversible ratchet arm	6
XL-75	48670	Complete set	1
XL-75V	48671	Complete set vacuum packed	1

Adjustable wrenches



Xcelite's exclusive thin-pattern design permits access where regular adjustables will not fit. Rugged construction, chrome-plated, polished heads, with quick, one-hand adjustments. Cushion-grip handle.

Cat.	N/S		÷ D	Shelf
No.	No.	"/mm	"/mm	Pack
44CG 44CGV	48144 48145	4/100	1/13	6
46CG 46CGV	48146 48147	6/150	3 /19	6
48CG 48CGV	48148 48149	8/200	$\frac{15}{16}$ /23.81	6

Electrician's knife



Both a knife and a screwdriver. Screwdriver blade has sharp edge for scraping insulation.

Cat.	N/S	Shelf
No.	No.	Pack
K22	48423	6
K22V	48424	0

Heat sink



Protects transistors and other delicate electronic components from heat during soldering. Tool has copper jaws for greatest possible heat absorption and dissipation; solder won't stick to nickel plated finish. Positive no-slip spring tension action with cushion-grip.

Cat.	N/S	←- L-→	Shelf
No.	No.	"/mm	Pack
80	48204	31/80	6
80V	48205	38/80	O
80D	Display card contain	s twelve Number 80 heat sinks.	6

Tool holster

(Tools not included)



150 (48364) Tool holster has tape holder, knife clip and five tool pockets. Made of durable saddle leather with natural cowhide finish.

Tweezers |**←**-L→| Shelf Cat. N/S Xcelite Pack No. "/mm Description 43/121 6 Sharp point XHT-434 48763 Smooth sharp points Xcelite XHT-412 48762 $4\frac{1}{2}/115$ Self closing, smooth sharp points 6 for holding work Cross lock 6/165 6 XHT-612 48765 Self closing, especially good for **Xcelite** soldering and gluing Cross lock 6 XHT-678 48766 67/174 For better view of close work for **Xcelite** hard to reach places Curved XHT-700 48767 7/178 Slender tapered point to fit 6 in tight places Straight 6 XHT-600 48764 6/152 Serrated points for sure grips opens to 3"/19mm width Round point

Precision Knives and Blades

A fine selection of 6 knives from light-weight to heavy duty for the professional and hobbyist alike. Precision made for durable life. Interchangeable blades held firm in sure-locking four jaw chuck. Stay sharp blades are made from surgical steel and honed for closest cutting and long lasting edge.

Knives Swivel blade

Free moving swivel for easy cutting of curves in lightweight material.



Cat.	N/S	;←	Type of blade	Shelf
No.	No.	″/mm		Pack
XN-400	48773	$5\frac{1}{16}/129$	XN-401	6

Light Duty



Designed for light-duty cutting on paper, soft and lightweight materials or wood.

Cat.	N/S No.	← " /mm	Type of blade	Shelf Pack
XN-100	48768	513/148	XNB-103	6

Medium Duty



For heavy paper and medium density materials.

Cat.	N/S No.	[←↓→ "/mm	Type of blade	Shelf Pack
XN-200	48769	5 3 /146	XNB-205	6

Heavy Duty Plastic Handle



For working with hardwood, plastic and other difficult to cut materials.

Cat.	N/S No.	←-L-→ "/mm	Type of blade	Shelf Pack
XN-210	48770	5 7 /137	XNB-201	6

Carving



The best choice for detailing and sculpting in wood. Comfort grip handle gives excellent control, accepts all carving blades.

Cat.	N/S	←-⊾→	Type of blade	Shelf
No.	No.	"/mm		Pack
XN-300	48772	5 144	XNB-301	6

Heavy duty metal handle



For those who prefer a metal handled knife cuts through hardwood, plastic, etc.

Cat.	N/S	← - →	Type of blade	Shelf
No.	No.	"/mm		Pack
XN-220	48771	5½/140	XNB-201	6

Light and medium duty knife set



Complete with 10 assorted blades. For a wide range of cutting operations.

Cat.	N/S	Contains	Shelf
No.	No.		Pack
XNS-100	48774	XN-100 and XN-200	6

Blades



All blades are safely packed in transparent plastic containers and carded. Number of blades per container shown in tables. Blades are interchangeable with other similar knives.

Cat.	N/S	0:		Fits Knife	Shel ¹ Pack
No.	No.	Qty.	Description		
XNB-103	48776	5	For most detailed cutting and stripping	XN-100	6
XNB-203	48779	5	For most cutting requirements	XN-200/210/ 220/300	6
XNB-105	48777	5	For scoring and etching as well as stencil cutting	XN-100	6
XNB-205	48780	5	For close corner cuts on templates, mates, gaskets, also trimming, stripping and de-burring	XN-200/210/ 220/300	6
XNB-201	48778	5	Rough shaping de-burring and chiseling	XN-220/210/ 220/300	6
XNB-101	48775	5	General duty for cutting, carving and correcting stencils	XN-100	6
XNB-401	48781	5	For papercraft including decoupage and cutting film, masks, wherever the finest cuts are needed	XN-400	6
XNB-1	48786	2	For general carving	XN-300	6
XNB-2	48787	2	Stay-sharp edge for carving	XN-300	6
XNB-3	48788	2	Carves a "V" trough	XN-300	6
XNB-4	48789	2	For deeper "V" trough cuts	XN-300	6
XNB-5	48790	2	For deeper "U" trough gouges	XN-300	6
XNB-6	48791	2	For light "U" trough gouges	XN-300	6
XNB-301	48783	2	For general purpose carving	XN-300	6
XNB-303	48784	2	For accurate carving details	XN-300	6
XNB-305	48785	2	For smoothing and shaping	XN-300	6
XNB-800	48782	10	Single edge razor blades	_	6

Xcelite long tape





50-foot yellow, epoxy-coated, steel tape with easy-to-read black graduations in feet, inches, and at hinches. Lightweight, high-impact, plastic case is extremely rugged to resist on-the-job jolts, and has smooth-winding nylon reel. End hook folds flush into unique case recess to prevent snagging.

Cat.	N/S No.	 -	Shelf Pack
TM-385	48633	50′/15m	1

Xcelite short tapes

TM-120



A 3-meter/10 foot, professional, rule with black-on-white minimum graduations in millimeters and $\frac{1}{32}$ inches on $\frac{1}{2}$ " wide steel tape. Spring clip permits hooking on belt for convenient carrying and quick access when needed. Chrome-plated, break-resistant plastic case.

Cat.	N/S No.	″/mm x ′/m	Shelf Pack
TM-120	48632	½"/13mm x 10'/3m	6

TM-146



2-meter/6 foot black-on-white rule in super-compact attractive black and chrome-plated metal case. Quick, accurate measurements anywhere, with minimum graduations in millimeters and $\frac{1}{32}$ inches on $\frac{1}{4}$ " wide steel tape. Packaged 6 to a card for pegboard display.

Cat.	N/S No.	*	Shelf Pack
TM-146	48631	¼"/6mm x 6'/2m	1

TKX-11 Multi-Purpose Tool Kit



The versatile kit contains 11 quality tools, perfect for all types of routine repair and simple do-it-yourself projects. Everything comes neatly packaged in an attractive, easy to store case.

Cat.	N/S No.	Description	Shelf Pack
R144	48540	¼" x 4"/101mm Round Blade Screwdriver	6
R184	48549	½" x 4"/101mm Round Blade Screwdriver	6
X101	48639	No. 1 Phillips x 3" /76mm Screwdriver	6
8	48700	‡" Hex Nutdriver	6
P12S	48485	No. 0 Phillips x 2"/51mm Screwdriver	12
51CG	48152	6"/152mm Long Nose Pliers with Side Cutter	6
46CG	48146	6"/152mm Adjustable Wrench	6
S-141	48585	1" x 11"/32mm Stubby Square Blade Screwdriver	6
100-X	48356	Wire Stripper & Cut Adj. Screw Top	6
TM-120	48632	½"/13mm x 10'/3048mm Metric/English Tape Rule	6
76C	48198	6"/152mm Combination Pliers. Chrome Plated	6
TKX-11	48737	Complete tool kit	3

Xcelite attaché tool cases For technicians, servicemen, and field engineers

Choice of three sturdy, spacious and attractive attaché style tool cases to meet virtually every need. Each an ideal assortment and arrangement of Xcelite's quality, professional hand tools neatly mounted in pockets on removable, vinyl covered pallets and trays, plus generous space for individualized selection of test instruments, parts boxes, Weller soldering gun and iron, Xcelite measuring tapes, and other tools. Roomy file pocket in lid for service manuals, circuitry diagrams, and literature. Dovetailed, solid wood frame.

Model TC-100/ST (48627)



Largest, most elaborate of the three cases. Contains 53 individual tools, plus 31 Series 99 interchangeable screwdriver/nutrdriver blades and handles, and two specialized screwdriver/nutdriver kits, as listed. Case covered with attractive, tough, chesnut-brown, leather-grain Marvelon. Removable three-panel, hinged pallet and tray outfitted with elastic loop and plastic pocket tool holders. Solid brass locks, latches, and hardware. Padded handle. Partitioned bottom compartment for other tools. Size: $9\frac{1}{2}$ " /495mm x $13/\frac{1}{2}$ "/343mm x $6\frac{3}{4}$ "/171mm.

Interchangeable screwdrivers, nutdrivers, other tools and handles:-

Cat.	onvers, numinvers, other tools and natures.—
No.	Description
1 x 99-1	Handle – regular
1 x 99-1-R	Handle – regular
1 x 99-4-R	Handle - Tee ratchet
1 x 99-X5	Extension
1 x 99-X10	Extention
1 x 99-38	Reamer
1 x 99-125	Slotted screw blade
1 x 99-250	Slotted screw blade
1 x 99-312	Slotted screw blade
1 x 99-811	Slotted screw blade
1 x 99-820	Phillips screw blade
1 x 99-821	Phillips screw blade
1 x 99-822	Phillips screw blade
1 x 99-61 through 69	Bristol 6-flute multiple spline blades (9)
1 x 99-20 through 26	Allen hex-socket type blades (7)
1 x 99-764	Allen hex-socket type blade
1 x 99-964	Allen hex-socket type blade

Pliers, wrenches, cutters:

Cat.	
No.	Description
1 x 42H	Straight nose seizer
1 x 46CG	Adjustable wrench 6"/152mm
1 x 50CG	Midget slip joint pliers 5"/127mm
1 x 51CG	Long nose pliers 6"/152mm
1 x 53CG	Utility pliers 7"/178mm
1 x 54CG	Diagonal pliers 4"/101mm
1 x 66CG	Diagonal pliers 6"/152mm
1 x 57CG	Needle nose pliers 5 ½"/139mm
1 x 59CG	Chain nose pliers 8"/203mm
1 x 86CG	Electronic snips
1 x 103-S	Wire stripper/cutter
1 x K22	Electrician's knife

Sets and Kits

Cat. No.	Description
1 x M-60	Mini drivers
1 x XL-75	Offset ratchet screwdrivers
1 x 600	Combination screwdriver-nutdriver tool
1 x SB1	Dual reversible screwdriver blade

Screwdriver

Cat.		
No.	Description	
1 x R144	Slotted screwdriver	
1 x R146	Slotted screwdriver	
1 x R181	Slotted screwdriver	
1 x R184	Slotted screwdriver	
1 x R3164	Slotted screwdriver	
1 x R3166	Slotted screwdriver (insulated)	
1 x R3323	Slotted screwdriver	
1 x R5325	Slotted screwdriver	
1 x S388	Slotted screwdriver	
1 x S3161	Slotted screwdriver	
1 x S5161	Slotted screwdriver	
1 x S5166	Slotted screwdriver	
1 x SX-101	Phillips screwdriver	
1 x XST-100	Phillips screwdriver	
1 x XST-101	Phillips screwdriver	
1 x XST-102	Phillips screwdriver	
1 x P18	Hex socket screwdriver	
1 x P19	Hex socket screwdriver	

TC-100/ST contents continued next page

Cat. Description No. 1 x HS6 Nutdriver - hollow shaft 1 x HS8 Nutdriver - hollow shaft 1 x HS10 Nutdriver - hollow shaft 1 x HS11 Nutdriver - hollow shaft Nutdriver - hollow shaft 1 x HS12 Nutdriver - hollow shaft 1 x HS14 1 x HS16 Nutdriver - hollow shaft 1 x HS18 Nutdriver - hollow shaft Nutdriver - magnetic 1 x 8M 1 x 10M Nutdriver - magnetic

Nutdrivers	Nutdrivers	
Cat. No.	Description	
1 x P3	Midget nutdriver	
1 x P4	Midget nutdriver	
1 x P5	Midget nutdriver	
1 x P6	Midget nutdriver	
1 x P7	Midget nutdriver	
1 x P8	Midget nutdriver	
1 x P9	Midget nutdriver	
1 x P10	Midget nutdriver	
1 x P11	Midget nutdriver	
1 x P12	Midget nutdriver	
1 x TA-2	Torque amplifier handle	

Model TC-100/MT (48625)

(Case only without tools)

Model TC-150/ST (48628)



A carefully selected, intermediate assortment of Xcelite hand tools plus the popular WP25 Weller 25 watt soldering iron. Contains 23 individual hand tools, 24 Series 99 interchangeable screwdriver/nutdriver blades and handles, XL70 offset ratchet screwdriver set, measuring tape, soldering iron and solder as listed. Case covered with durable, eye catching, whiskey-tan Marvelon. Removable pallets in lid and base outfitted with plastic tool pockets. Base has ample room for additional, personally selected tools, with 14" x 9½" (353mm x 241mm) partition. Solid brass hardware and padded handle. Size: $18½" \times 13½" \times 5"$ (470mm x 343mm x 127mm).

Interchangeable screwdrivers, nutdrivers, other tools and handles:

Description Handles (regular and ratchet Tee)
Handles (regular and ratchet Tee)
Extension
Allen hex-socket type blades (9)
Hex nutdriver blades (7)
Slotted screw blades
Phillips screw blades
Reamer

Pliers, wrenches, cutters

Cat.	
No.	Description
42H	Seizer
46CG	Adjustable wrench
50CG	Midget slip joint pliers 5"/127mm
53CG	7"/178mm Utility pliers
51CG	Long nose pliers 6"/152mm
54CG	4"/102mm Diagonal
55CG	5"/127mm Diagonal
57CG	5½"/140mm Needle nose pliers
59CG	8"/203mm Chain nose pliers
86CG	Electronic snips
101-S	Wire stripper
K22	Electrician's knife

Screwdrivers

Cat. No.	Description
R181	Slotted screwdriver
R3323	Slotted screwdriver
R184	Slotted screwdriver
R3164	Slotted screwdriver
S5166	Slotted screwdriver
S3161	Slotted screwdriver
SX101	Phillips screwdriver

Offset ratchet screwdriver set XL75

Cat.		
No.	Description	
XL-75	5-piece set in see-thru plastic pouch	

No. 600 4-way pocket tool

Cat.		
No.	Description	
600	Combination Dual Nutdriver Handle	

Nutrivers

Cat.		
No.	Description	
HS-14	Hollow shaft	
HS-16	Hollow shaft	
8M	Magnetic	
10M	Magnetic	

Soldering equipment

Cat. No.	Description	
WP25	Weller 25 watt soldering iron	
BC-60	Rosin core solder	

Measuring tape

Cat. No.	Description	
TM-120	10-foot tape	

Model TC-150/MT (48626)

(Case only without tools)

Model TC-200/ST (48630)



Fine blending of quality, economy and flexibility. Contains ten individual tools and twenty seven series 99 interchangeable screwdriver/nutdriver blades and handles, as listed. Case $18\frac{1}{2}^{\prime\prime}$ x $13\frac{1}{2}^{\prime\prime}$ x $4\frac{3}{4}^{\prime\prime}$ /479.90mm x 342.90mm x 120.65mm covered with rugged black durahyde. Removable pallet in lid outfitted with plastic tool pockets. Spacious lower section for additional tools. Brass-finished hardware.

Interchangeable screwdrivers, nutdrivers, other tools and handles.

Cat.		
No.	Description	
1 x 99-1	Straight handle	
1 x 99-4	Tee handle	
1 x 99-20 to 99-26	Hex socket screw blades (7)	
1 x 99-764	Hex socket screw blade	
1 x 99-964	Hex socket screw blade	
1 x 99-38	Reamer	
1 x 99-X5	Extension	
1 x 99-820	Phillips screw blade	
1 x 99-821	Phillips screw blade	
1 x 99-822	Phillips screw blade	
1 x 99-125	Slotted screw blade	
1 x 99-811	Slotted screw blade	
1 x 99-250	Slotted screw blade	
1 x 99-312	Slotted screw blade	
1 x 99-6	Hex nutdriver blade	
1 x 99-8	Hex nutdriver blade	
1 x 99-10	Hex nutdriver blade	
1 x 99-11	Hex nutdriver blade	
1 x 99-12	Hex nutdriver blade	
1 x 99-14	Hex nutdriver blade	
1 x 99-16	Hex nutdriver blade	

Pliers, wrenches, cutters

Cat.	
No.	Description
1 x 43H	Curved nose seizer 6"/152mm
1 x 46CG	Adjustable wrench 6"/152mm
1 x 51CG	Long nose pliers 6½"/165mm
1 x 53CG	Utility pliers 7"/178mm
1 x 64CG	Diagonal pliers 4"/101mm
1 x 55CG	Diagonal pliers 5"/127mm
1 x 57CG	Needle nose pliers 5½"/139mm
1 x 86CG	Electronic snips
1 x 101-S	Wire stripper-cutter
1 x K22	Electrician's knife

Model TC-200/MT (48629)

(Case only without tools)

Xcelite modules

For use with the Cooper Tool wall. For additional information regarding the Cooper module system see the last 2 pages of this catalog.

TW-106 (48741) Screwdrivers module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 11 lb/4.99 Kg Contains: Three (3) Each X101V, X102V, R144V, R184V, R3322V, R146V, R3166V, R5166V.

TW-106A (48742) refill assortment only.

TW-107 (48743) Nutdrivers module



Size 16"/400mm x 29"/740mm (A) Shipping weight: 12 lb/5.44 Kg. Contains: Three (3) Each 6V, 8V, 10V, 12V, HS6V, HS8V, HS10V, HS12V. TW-107A (48744) refill assortment only.

TW-109 (48747) Pliers and Wrenches module



Size: 16"/400mm x 29"/740mm (A) Shipping weight: 10 lb/4.53 Kg. Contains: Two (2) Each 54CGV, 55CGV, 41CGV, 51CGV, 56CGV, 46CGV, 48CGV, 44CGV.

TW-109A (48748) refill assortment only.

TW-108 (48745) Pliers module



Size 16"/400mm x 29"/740mm (A) Shipping weight: 9 lb/4.08 Kg. Contains: Two (2) Each 76CV, 74CGV, 84CGV, 95CGV, 108CGV, 70CGV, 77CGV, 110CGV. TW-108A (48746) refill assortment only.

TW-110 (48749) Compact convertible tool sets modules



Size 16"/400mm x 29"/740mm (A) Shipping Weight: 16 lb/7.26 Kg. Contains: Two (2) Each PS88V, PS120V, PS130V, 99PS-40V, 99PS-50V, 99PS-60V. TW-110A (48750) refill assortment only.

TW-111 (48751) Series 99 module



Size 16" /400mm x 29" /740mm (A) Shipping weight: 13 lb/5.89 Kg Contains: Four (4) Each 99-1V, 99-1-RV, 99-2V, 99-4V, 99-6V, 99-8V, 99-10V, 99-12V, 99-811V, 99-250V, 99-821V, 99-822V.

TW-111A (48752) refill assortment only.

TW-114 (48835) Torx[®] module



Size 16" /400mm x 29" /740mm (A) Shipping Weight: 8 lb/3.63 Kg Contains: Three (3) Each XTD-10V, XTD-15V, XTD-20V, XTD-25V, XTD-27V, XTD-30V.

TW-114A (48836) refill assortment only.

TW-204 (48815) Tool kit modules



Size 16"/400mm x 13"/330mm (C) Shipping weight: 14 lb/6.35 Kg Contains: Two (2) TKX-11. TW-204A (48816) refill assortment only.

TW-208 (48818) Tweezer module



Size 16" /400mm x 29" /740mm (A) Shipping weight: 11 lb/4.99 Kg Contains: Two (2) Each XHT-412, XHT-434, XHT-600, XHT-612, XHT-678, XHT-700, 42HV, 43HV, 100XV, 80V. TW-208A (48819) refill assortment only.

TW-205 (48816) Hobby driver module



Size 16"/400mm x 13"/330mm (C) Shipping weight: 8 lb/3.63 Kg Contains: Two (2) Each M60V, PS-89V, XL-75V, SD-3V. TW-205A (48817) refill assortment only.

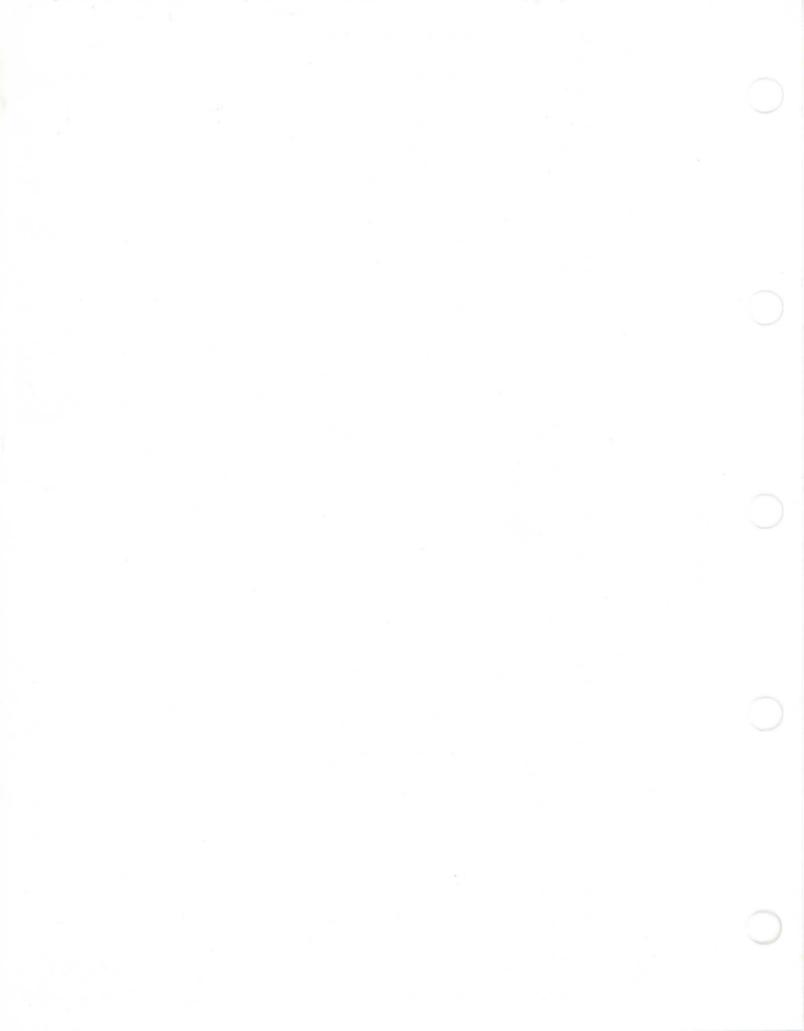
TW-207 (48817) Hobby knives and blades module



Size 16"/400mm x 29"/740mm (A) Shipping weight: 11 lb/4.99 Kg Contains: Two (2) Each XN-100, XN-200, XN-210, XN-220, XN-300, XN-400, XNS-100, XNB-101, XNB-103, XNB-105, XNB-201, XNB-203, XNB-205, XNB-401, XNB-800, XNB-301, XNB-303, XNB-305, XNB-1, XNB-2, XNB-4, XNB-5, XNB-6. TW-207A (48818) refill assortment only.

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3	X23, X24, X28 X45, X46	99 21 X21. X24. X X1. X44 X45. X		X35 X35	M 60 M-60V	X18, X44 X18, X48	S-3161V S 3163	X5 X5	XNB-201 XNB-203	X42. X48 X42. X48
SV	X28. X47	99 2 1BP X21. X	25 107-CGV	X35	MOO	X18	S-3163V	X5	XNB-205	X42. X48
i V	X28	99-22 X21, X24, X26, X44 X45, X		X35 X35, X47	MO1 MO2	X18 X18	S-3164 S-3164V	X5 X5	XNB-301 XNB-303	X42, X48 X42, X48
	X28. X47 8. X44. X45. X46	99 22BP X21, X	25 109-CG	X35, X47	MO3	X18	S-3166	X5	XNB 305	X42 X48
3V	X28	99-23 X21, X24, X26, X X44, X45, X		X35	MO4 MO5	X18 X18	S-3166V S-3168	X5 X5	XNB-401 XNB 800	X42. X48 X42. X48
i V	X28 X29 X29	99-23BP X21, X		X36 X36, X47	M06	×18	S-3812	X5	XNS-100	X41 X48
a V	X29. X44. X45 X29	99-24 X21, X24, X26. X 44, X45, X	1. 111-CG	X36 X36	P-0 P-1 X15	X15, X16 , X16 X17, X18	\$-5161 \$-5161V	X5. X44 X5	XST 3 XST-5	X7 X7
o V	X30	99-24BP X21. X	46 111-CGV 25 127TB	X 14		X15, X17, X18	S-5164	X5	XST-100	X6, X7, X44
١V	X30	99-25 X21, X24, X26, X X44, X45, X		X14	P-3 P-3MM	X16. X45 X16	S-5164V S-5166	X5. X44. X45	XST-100V XST 101	X6, X7, X44
i iV	X30 X30	99-25BP X21. X	25 157	X40 X14	P-3 5MM	X16	S-5166V	X5	XST-101V	X6
i	X28. X46	99-26 X21, X24, X26, X X44, X45, X	11. 162-CG	X32	P 4 P-4MM	X16. X45 X16	S-5168 S 51610	X5 X5	XST-102 XST-102V	X6. X7 X44 X6
SV S	X28 X28. X44	99-26BP X21, X25,	(1 177	X32 X14	P-4 5MM	X16	S-71612	X5	XST-1010	X6. X7
V	X28	99-38 X22. X23. X27. X X44. X45. X		X4	P-5 P-5MM	X16. X45 X16	S-71618 SB1	X7. X48 X44	XST-1020 XTD-10	X6. X7 X7
SV	x28 x28	99-38V X	22 600	X4 X11, X44, X45	P-55MM	X 16	SD-3V	X7. X48	XTD 10V	X7. X48
i	X30	99-61 X22, X24. X X2. X		X11 X11	P-6 P-6MM	X16, X17 X45 X16	SDR-11 SDS-44	X5 X5	XTD-15 XTD 15V	X7 X7. X48
V	X30 X34	99 62 X22. X24. X	27. CK-20	X11	P-7	X16, X45	SDX-22	X7	XTD 20	X7
V	X34 X32	99-63 X22. X24. X		X11 X11	P-7MM P-8 X16.	X16 X17. X18. X45	SL-O SL-OV	X10 X10	XTD-20V XTD-25	X7_X48 X7
V	X32 X47	* X2. X	14 CR-1V	X11	P 8MM	X16	SL-1	X 10	XTD-25V	X7 X48
	X32 X32	99-64 X22. X24. X X2. X		X11 X11	P-9 P-10	X16 X45 X16. X17. X45	SL 1V SL·2	X 10 X 10	XTD-27 XTD-27V	X7 X7. X48
V	X32	99-65 X22. X24. X	7. FSD-1	X 12	P-10MM	X16	SL-2L	X10	XTD-30	X7
V	X32	X2. X 99 66 X22. X24. X	14 FSD-1V	X 12 X 12		K16, X17, X45 K16, X17, X45	SL-2LV SL 2V	X10 X10	XTD-30V	X7. X48
V	X33	X2. X	FSDP 2	X 12	P-12S	X6. X43	SL 3	X10		
	X34	99-67 X22. X24. X X2. X	7. FSDP 3	X12 X12	P-12-SV P-18	X6 X1, X17, X44	SL:3V SRX:33	X10 X7		
iV	X34, X47 X30	99-68 X22. X24 X	7. G146	X10	P-19	X1, X17, X44	SX-101	X6. X44. X45		
•	X30	99 69 X22. X24 X	44 G146V	X 10 X 10	P 20 P-21	X1_X17 X1_X17	SX-102 TA-2 X	X6. X7 (15, X16, X17 X18		
	X30, X43 X30, X47	X2. X	14 G3164V	X10	P-22	X1, X17		X45		
	X32	99-71MM X21, X 99-71MMBP X21, X	6 G5324	X 10 X 10	P-?3 P-24	X1. X17 X1 X17	TC:100:MT TC:100:ST	X45 X44 X45		
V	X32, X47 X30	99-72MM X21, X	26 HS-6	X13. X15. X45	P-71	X 17	" TC 150 MT	X46		
	X30 X33	99-72MMBP X21, X 99-73MM X21, X		X 15 X 13. X 4 7	P 72 P 73	X17 X17	TC 150/ST TC:200/MT	X45 X46		
V	X33	99-73MMBP X21. X	25 HS-7	X13 X15	P74	X 17	TC-200/ST	X46		
	X39 X39	99-74MM X21. X 99-74MMBP X21. X		X13 X13, X45, X15	P 75 P-76	X17 X17	TKX-11 TM-120	X43, X48 X42, X43, X46		
	X39. X48	99-75MM X21. X	26 HS-8V	X13 X47	P 77	X 17	TM-146	×43		
	X33	99-75MMBP X21, X 99-76MM X21, X	?5 HS-9	X13. X15 X13	P 78 P 141	X17 K15, X17, X18	TM-385 TR-4	X42 X10		
i V	X33	99-76MMBP X21. X	25 HS-10	X13, X45, X14, X15	P-181	X15 X17	TSD-1	X12		
V	X33	99-77MM X21, X 99-77MMBP X21, X	26 HS-10V	X13, X47	P-764 P-3161 X15.	X1, X17 X16, X17, X18	TSD-1V TSDP-1	X12 X12		
i iV	X35 X35, X47	99-125 X20 X24 X44 X	6 HS-11V	X13, X45, X14, X15 X13	P-3321	X15. X16	TW-106	X47		
X3	8, X44, X45, X46	99-125V X 99-250 X20, X23, X24, X	20 HS-12)	X13. X45. X14. X15	P-5321	X15 X18	TW-106A TW-107	X47 X47		
iV	X38 X33	X44, X45, X46, X	18 HS 14	X13, X47 X13, X45, X46	PG-532 PS 7	X16	TW-107A	X47		
٧	X33	99-250V X20, X	18	X14 X15	PS-7V	X16 X18	TW-108 TW-108A	X47 X47		
i SV	X33 X33	99-312 X20, X24, X44, X 99-312 X	46 HS-14V 20 HS-16	X13 X13, X45, X46	PS-44 PS-44V	X18 X18	TW-109	X47		
ì	X34	99-764 X21. X24. X26.	C1,	X14. X15	PS-88	X 15	TW-109A	X47		
av a	X34 X34	X44, X45, X 99-764BP X21, X		X13 X13, X45, X15	PS-88V PS-89	X15, X47 X17, X1	TW-110 TW-110A	X47 X47		
	X34 X34	99-811 X20. X23. X24. X	26. HS-18V	X13	PS-89V	X17. X48	TW-111 TW-111A	X48 X48		
١٧										
iV iV	X34 X34	99-811V X44, X45, X		(39 X44 X45 X46 X39	PS-90MM PS 120	X17 X16	TW 114	X48		







CooperTools

Boker Tree 🏶 Brand

The oldest manufacturer of pocket knives in the United States, with a wide range that includes utility, sporting and hunting knives, plus commemorative knives for a fast growing collectors' market.

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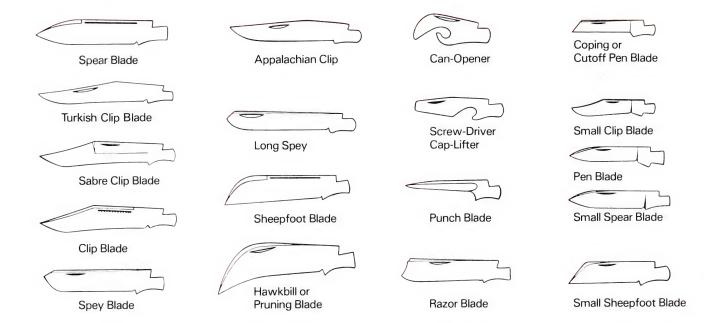
N/S No. is an abbreviation of NIDA/SIDA Number.

Boker Tree Brand Knives Quality Story

Boker Tree Brand is one of the most respected trademarks in the field of fine cutlery. It is America's oldest name in pocket and sporting knives...since 1837.

Boker Tree Brand Knives have a tradition of quality that is founded on the skill, experience and dedication of master craftsmen. It is their constant striving to produce a product in which they can individually take pride that guarantees the continuing superior quality of Boker Tree Brand pocket and sporting knives. But workmanship is only part of the story...a Boker Tree Brand Knife is made only of the finest materials. Blades are made of Special Chrome-Vanadium Alloy Steel or stainless steel for extra fine edge-holding ability. Bolsters for Boker Tree Brand Knives are made from nickel silver or special alloys that give strength and beauty to the knife...the linings are brass. Handle materials are selected for their durability and attractiveness. These fine time-proven materials, when crafted skillfully and patiently in the hands of a master cutler, produce a truly fine quality Boker Tree Brand Knife.

Blade Shapes



American made knives

Barlow knives



All saw cut Delrin handles.

Cat.	N/S No.	Blade Description	Size Closed ''/mm	Shelf Pk. wt. oz/g	Shelf Pack
			<u> </u>		
492	58106	Spear & Pen	$3\frac{5}{16}/84$	8/227	3
493	58107	Clip & Pen	3 5 / 84	8/227	3
494	58109	Sheepfoot & Pen	3 5 / 84	8/227	3
495	58110	Razor & Pen	$3\frac{5}{16}/84$	8/227	3
493R Blister p	58108 acked	Clip & Pen	$3\frac{5}{16}/84$	11/312	3

Pen knives Serpentine



With stag type handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8288	58161	Clip & Pen	23/69	2.5/64	3
3588	58131	Clip & Pen	33/85	4/113	3

Senator



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
1428	58123	Spear & Pen	31/79	3.5/99	3

Congress knives Small congress



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
6484	58147	2 Sheepfoot & 2 Pen	3/76	4.5/128	3
6384	58145	Sheepfoot & Pen	3/76	3/85	3

Medium congress



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
6006	58142	2 Sheepfoot & 2 Pen	3₹/95	6.5/184	3

Medium congress



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
6113	58144	Spear, Sheepfoot & 2 x Pen	33/95	8/227	3

Medium congress "Olde Stag"



With Del-bone handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
70113	58191	Spear, Sheepfoot & 2 Pen	3¾/95	3.8/96	1(Gift boxed)

Utility jack knives



With Ebonite handles.

Cat. No.	N/S No.	Blade Description	Size Closed ''/mm	Shelf Pk. wt. oz/g	Shelf Pack
83	58073	Clip & Pen	3/76	4.5/128	3
84	58074	Sheepfoot & Pen	3/76	5/142	3
85	58075	Razor & Pen	3/76	4.5/128	3
85R Blister p	58076 acked	Razor & Pen	3/76	8/227	3

Small serpentine jack knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8248	58160	Clip & Pen	23/69	3/85	3

Medium jack knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed ''/mm	Shelf Pk. wt. oz/g	Shelf Pack
8348	58164	Clip & Pen	33/85	5.5/156	3





With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8368	58165	Saber clip & Pen	4/100	8.5/241	3

Small jack knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9023	58172	Spear & Pen	$3\frac{1}{16}/77$	4.5/128	3

Dogleg jack



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9903	58189	Spear & Pen	2 ½ / 73	3.5/99	3
9908	58190	Sabre clip & Pen	2½/73	3.5/99	3

Varmint or Texas jack knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
3030	58130	Large clip & Spear	4/100	8.5/241	3

Stock knives Small Premium stock knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8388	58166	Clip, Sheepfoot & Pen	21/69	3.0/85	3

Medium premium stock knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8585	58169	Clip, Spey & Pen	33/85	5.5/156	3
8588	58170	Clip, Sheepfoot & Spey	33/85	5.5/156	3
8593	58171	Clip, Spey & leather punch	33/85	6.0/170	3
8113	58158	Long turkish clip, Spey & Pen	3½/88	6.0/170	3
8128	58159	Long turkish clip, Sheepfoot & Spey	3½/88	6.0/170	3

Medium premium stock knife "Olde Stag"



With Del-bone handle "Olde Stag".

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
70488	58193	Clip, Sheepfoot & Spey	33/85	3/85	1(Gift boxed)

Large premium stock knife



With stag type handles.

Cat. No.	N/S No.	Blade Decsription	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8573	58168	Clip, Sheepfoot & Spey	4/100	9.0/255	3



With stag type handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9885	58185	Clip, Sheepfoot & Spey	4/100	9/255	3
9885R Blister pa	58186 acked	Clip, Sheepfoot & Spey	4/100	13/368	3



With Synthetic pearl handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. Oz/g	Shelf Pack
98851	58187	Clip, Sheepfoot & Spey	4/100	9/255	3

Large premium stock knife



With Ivory color handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9885V	58188	Clip, Sheepfoot & Spey	4/100	12/340	3

Large premium stock knife "Olde Stag"



With Del-bone handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
70485	58192	Clip, Sheepfoot & Spey	4/100	3/85	1(Gift boxed)

Carpenter & Whittler knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
8313	58163	Sabre clip, Coping & Pen	$3\frac{1}{2}/88$	7/198	3

Utility knife of 1,000 uses



With smooth brown Delrin handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9215	58173	Hawkbill	4/100	11/312	3
9215R	58175	Same as 9215 exce	ept Red handle b	lister packe	d 3

"TheMiner"Utility Knife



With Ebony Delrin handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9215M	58174	Hawkbill	4/100	11/312	3

Camper's knife



With stag type handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9361	58182	Spear & Pen, can opener, screwdriver-bottler caplifter	31/95	11.5/326	3
9361R	58183	Blister packed			3

Trapper's or Muskrat knife



With stag type handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9572	58184	2 Skinning clip	4/100	8/227	3

Electrician's knife



Special Brass lock keeps screwdriver from closing when in use.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
9229	58176	Spear blade, screwdriver & insulation scraper	3₹/95	3.5/99	3
9229R	58177	Blister packed			3

Imported knives — Made in Solingen, Germany



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed ''/mm	Shelf Pk. wt. oz/g	Shelf Pack
200	58087	Spear & Pen	3 ⁹ / 90	8.5/241	3

Small pen knife



With Rosewood handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
82881	58162	. Clip & Pen	2¾/69	2/57	3

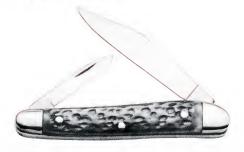
Medium pen knife



With Rosewood handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
240	58089	Clip & Pen	3½/79	3.5/99	3

Medium pen knife



With genuine bone handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
240B	58088	Clip & Pen	31/79	1.1/32	1(Gift boxed)

Deluxe Whittler & pen knife



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
280	58091	Clip, Pen & Coping	3½/88	4.5/128	3

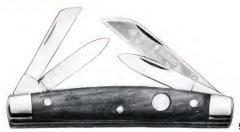
Deluxe Whittler & pen knife



With genuine bone handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
280B	58090	Clip, Pen & Coping	3½/88	1.5/43	1(Gift boxed)

Congress knives Small congress



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
5252	58137	Sheepfoot & Pen	31/82	3/85	3
5452	58138	Sheepfoot, Coping & 2 Pen	31/82	4/113	3

Medium congress



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
5464	58140	2 Sheepfoot, Pen & Coping	3₹/95	8/227	3

Medium congress



With genuine bone handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
5464B	58139	2 Sheepfoot, Pen & Coping	3¾/95	3/85	1(Gift boxed)

Premium stock knives Pony stock knife



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed ''/mm	Shelf Pk. wt. oz/g	Shelf Pack
83881	58167	Clip, Sheepfoot & Spey	23/69	3/85	3

Medium premium stock



With Rosewood handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
7388	58148	Clip, Spey & punch	3½/88	5.5/156	3
7588	58157	Clip, Sheepfoot & Spey	3½/88	7.0/198	3
Medium	premium	with genuine bone han	dle.		
7588B	58156	Clip, Sheepfoot & Spey	3½/88	2.5/71	1(Gift boxed

Large premium



With Rosewood handles.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
6066	58143	Clip, Sheepfoot & Spey	4/100	6.5/184	3
7474	58155	Clip, Sheepfoot & Spey	4/100	8.5/241	3

Large premium



With genuine bone handles.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
7474B	58154	Clip, Sheepfoot & Spey	4/100	2.7/77	1(Gift boxed)

Rosewood jack knife



With Rosewood handle.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	SHelf Pk. wt. oz/g	Shelf Pack
340	58257	Clip & Pen	3 ½ / 79	2/56	3

Folding lock hunting knives Drop point hunting knife



Rosewood handles. Stainless steel blades. Nickel silver bolster and pins. Solid Brass linings.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
1000	58119	Drop point	41/107	3.4/96	3

Order sheath separately Cat. No. 73106S

Skinner hunting knife



Rosewood handles. Stainless steel blades. Nickel silver bolster and pins. Solid Brass linings.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
1001	58213	Skinner	41/107	3.3/93	3

Order sheath separately. Cat. No. 73106S. N/S No. 58217.

Premium folding lock hunting knife



Solid spring lock. Rosewood handles. Polished brass bolsters, fittings and pins. 440C Stainless steel drop point blade.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
2000	58256	Drop point	4 3/120	6.5/184	1

Order sheath separately. Cat. No. 73105S. N/S No. 58150.

Folding hunting knife



Rosewood handles. Stainless steel blades. Nickel silver bolster and pins. Solid brass linings.

Cat.	N/S No.	Blade Description	Size Closed	Shelf Pk. wt. oz/g	Shelf Pack
No.	INO.	Description			
2020	58129	Clip & Skinning	51/133	19/539	3

Order sheath separately. Cat. No. 73106S. N/S No. 58217.

Trapper knife



Rosewood handles. Nickel silver pins and bolsters. Solid brass linings.

Cat.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
2525	58216	Clip & Spey	41/107	6.5/184	3

Sportsman's knife



Rosewood handles. Nickel silver pins and bolsters. Solid brass linings.

Cat. No.	N/S No.	Blade Description	Size Closed "/mm	Shelf Pk. wt. oz/g	Shelf Pack
93	58077	Long clip	4/100	5/142	3

Hunting knives 500 series



The new Boker 500 series incorporating some of the most significant advances in hunting knives in recent years. With handles shaped and surfaced to provide the surest and most comfortable grip ever. With firmly-fixed blades, specially designed for the job, made of stainless steel and set in the handle with solid bronze guard. The full range comes individually boxed with rugged leather sheaths, embossed with Boker Tree Brand.

Large skinning



Cat No	N/S No	Overall Size	Shelf Pk. wt. oz/g	Shelf Pack
501	58266	81/222	5/142	1

Complete with sheath

Medium skinning



Cat No.	N/S No.	Overall Size	Shelf Pk. wt. oz/g	Shelf Pack
502	58267	83/222	4.5/128	1

Complete with sheath

Sportsman



Cat No	N/S No.	Overall Size	Shelf Pk. wt. oz/g	Shelf Pack
503	58268	91/234	4.75/135	1

Complete with sheath.

Small game



Cat No.	N/S No	Overall Size	Shelf Pk. wt. oz/g	Shelf Pack
504	58269	9/228	4.5/128	1

Fillet knife and sheath



7½"/190mm Flexible Stainless steel blade, full tang. Rosewood handles. Brass rivets. Hanging hole. Comes with genuine leather sheath.

Cat. No.	N S No.	Overall length	Shelf Pk. wt oz/g	Shelf Pack	
F8S	58255	123"/3.18	61/177	1	

73105S (58150) Sheath



73106S (58217) Sheath



Genuine molded leather designed to be used with folding hunting knives #2000 & #2020.

Shelf Pack Quantity: 3 Shipping Weight: 1.5 oz./42 g.

Genuine molded leather designed to be used with folding hunting knives #1000 & #1001. Shelf Pack Quantity: 1

Shipping Weight: 1.25 oz./35g.

KC-73131 (58199) counter display Southeast display assortment



Size $17\frac{3}{4}$ "/451mm wide x $17\frac{3}{4}$ "/451mm high x 9"/228mm Deep at base. Shipping Weight 23 lb/10.43 Kg. Contains: Three (3) Each 493, 8348, 9908, 8288, 6384, 6484, 8388, 8588, 9885, 9885l, 8313, 9229, 9361, 240, 7588, 93, 2020, 73105S (Sheath for 2020).

KF-73101X (58277) floor display National display assortment



Size 20''/508mm wide x $50\frac{1}{4}''/1276$ mm high including casters x 11''/279mm Deep at base.

Shipping Weight 79 lb/36 Kg.
Contains: Three (3) Each 493, 3030, 8348, 8368, 9908, 3588, 8288, 8113, 8388, 8573, 8585, 8588, 8593, 9885, 9885I, 8313, 9215, 9229, 9361, 9572, 93, 2020, 73105S (Sheath for 2020), 501, 502, 503, 504.

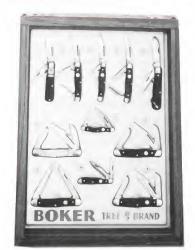
KF-73130X (58278) floor display Southeast display assortment



Size 20"/508mm wide x 50\frac{1}{2}"/1276mm high x 11"/279mm Deep at base. Shipping Weight 76 lb/34.5 Kg.

Contains: Three (3) Each 493, 85, 3030, 8348, 9908, 8288, 6113, 6384, 6484, 8388, 8573, 8585, 8588, 9885, 98851, 8313, 9215, 9229, 9361, 9572, 240, 280, 6066, 7474, 7588, 93, 2020, 73105S (Sheath for 2020) 501, 502, 503, 504.

KC-73103 (58196) counter display National display assortment



Size $12\frac{1}{8}$ " /308mm wide x $16\frac{1}{2}$ " /419mm high x $8\frac{3}{4}$ " /222mm Deep at base. Shipping Weight 15 lb/6.80 Kg. Contains: Three (3) Each 493, 8348, 9908, 8288, 8573, 8588, 8593, 9885, 9885I, 9229, 9572.

KC-73132 (58200) counter display Southeast display assortment



Size $12\frac{1}{8}$ "/308mm wide x $16\frac{1}{2}$ "/419mm high x $8\frac{3}{4}$ "/222mm Deep at base. Shipping weight 14 lb/6.35 Kg. Contains: Three (3) Each 493, 8348, 9908, 8288, 6384, 8573, 8588, 9885, 9885I, 9572.

KC-73134 (58270) Medium imported counter display Pocket and Hunting knives assortment New!



Size: $17\frac{2}{4}$ "/451mm wide x $17\frac{2}{4}$ "/451mm high x 9"/228mm Deep at base. Shipping weight: 22 lb/9.98 Kg. Contains: Three (3) Each 8288-I, 8388-I, 240, 340, 7388, 6066, 200, 2525, 1000, 1001, 93, 2020, 280, 2000.

KC-73135 (58272) counter display Hunting knives assortment



Size: $17\frac{3}{4}$ "/451mm wide x $17\frac{3}{4}$ "/451mm high x 9"/228mm Deep at base. Shipping weight: 27lb/12.25 Kg. Contains: Three (3) Each of 10 knives plus sheaths for 500 series and Fillet (F8S): 501, 502, 503, 504, 1000, 1001, 2000, 2020, F8S, 93.

Boker® Module

For use with the Cooper Tool Wall. For additional information regarding the Cooper module system see the last 2 pages of this catalog.

TW48 (58232) Knife module



Size: 16" /400mm x 16" /400mm (B) Shipping weight: 6 lb/ 2.72 Kg. Contains: Two (2) Each 85R, 493R, 9215R, 9229R, 9361R, 9885R.

Boker counter and floor displays KC-7160A (58149) counter display Industrial assortment



Size $12\frac{1}{8}$ "/308mm wide x $16\frac{1}{2}$ "/419mm high x $8\frac{3}{4}$ "/222mm Deep at base Shipping weight 23 lb/10.43 Kg. Contains: Four (4) Each 493, 8388, 9229, 9908, 9361, 9215, 2020, 8313, 8593, 9885V.

KC-73133 (58201) counter display Imported assortment



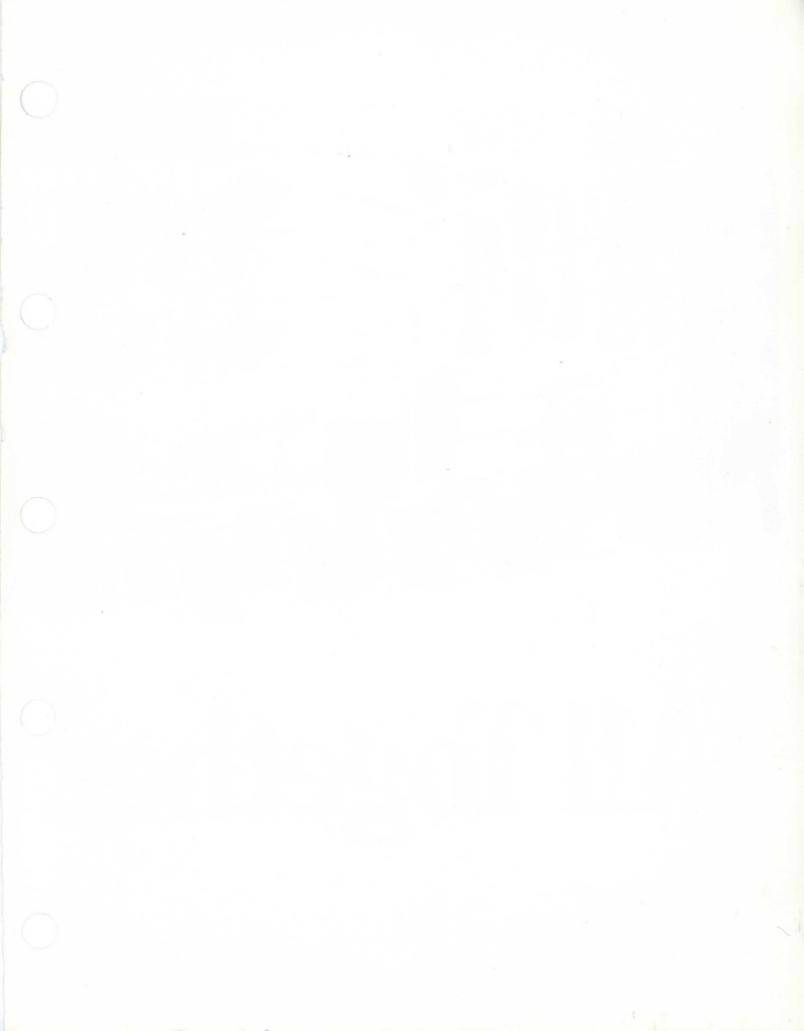
Size $12\frac{1}{8}$ "/308mm wide x $16\frac{1}{2}$ "/419mm high x $8\frac{3}{4}$ "/222mm Deep at base Shipping Weight 16 lb/7.26 Kg. Contains: Three (3) Each 240, 280, 8288I, 5252, 5452, 5464, 6066, 7474, 7588, 8388I, 93, 2020.

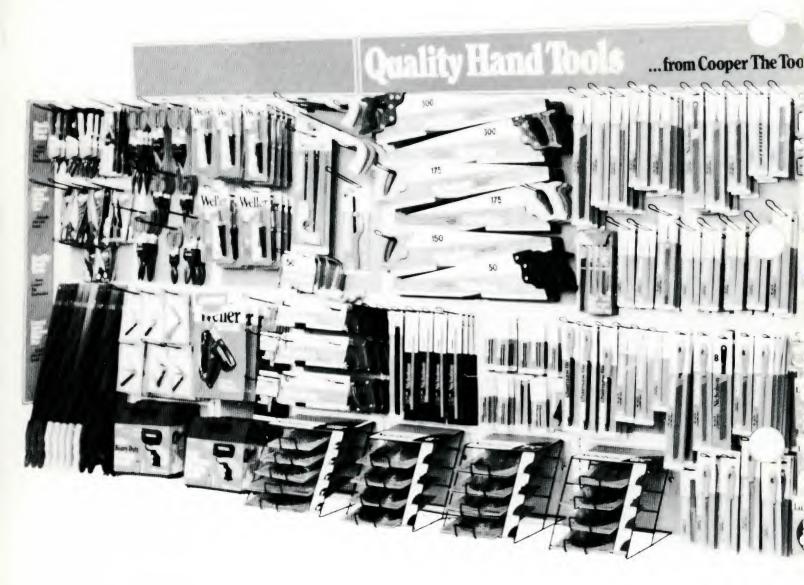
KC-73102 (58195) counter display National display assortment



Size $17\frac{3}{4}$ " /451mm wide x $17\frac{3}{4}$ " /451mm high x 9" /228mm Deep at base. Shipping Weight: 22 lb/9.98 Kg. Contains: Three (3) Each 493, 8348, 3030, 9908, 3588, 8288, 8113, 8388, 8588, 8593, 9885, 98851, 8313, 9215, 9229, 9361, 9572.

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All Together.



The most famous names in tools all combine in the Cooper Tool-wall to bring you higher turnover and a better profit per square foot.

It works on a modular system to suit any size and the mix 'n' match assembly adapts to any number of product combinations. So you can start small – say with an eight foot unit – and expand later.

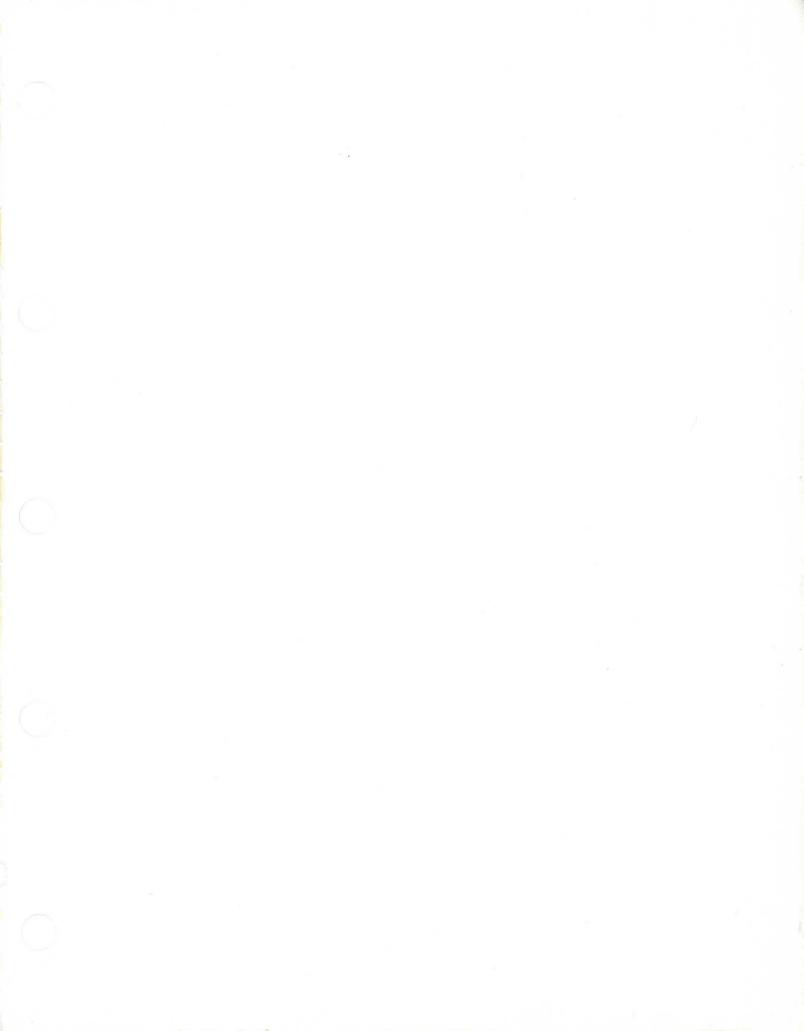
Or sooner. Because impulse purchasing increases, browsers become buyers, your selling workload is reduced and stock control is made simple—all with the wall.

The Toolwall from Cooper The Toolmaker.

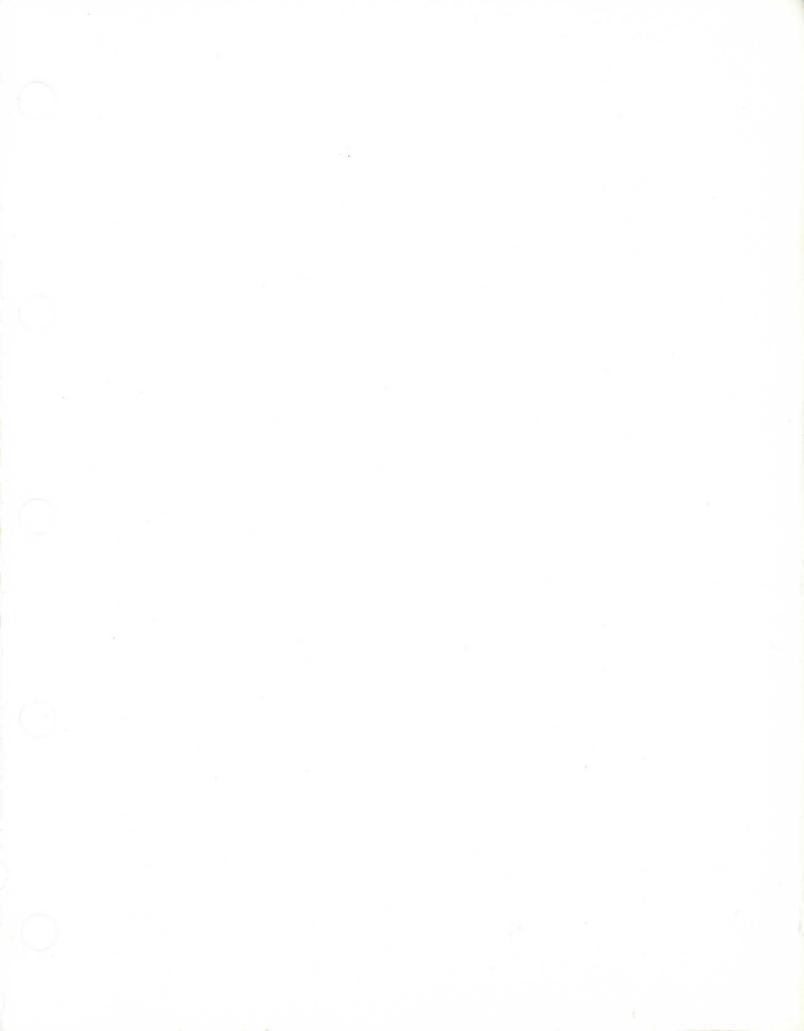
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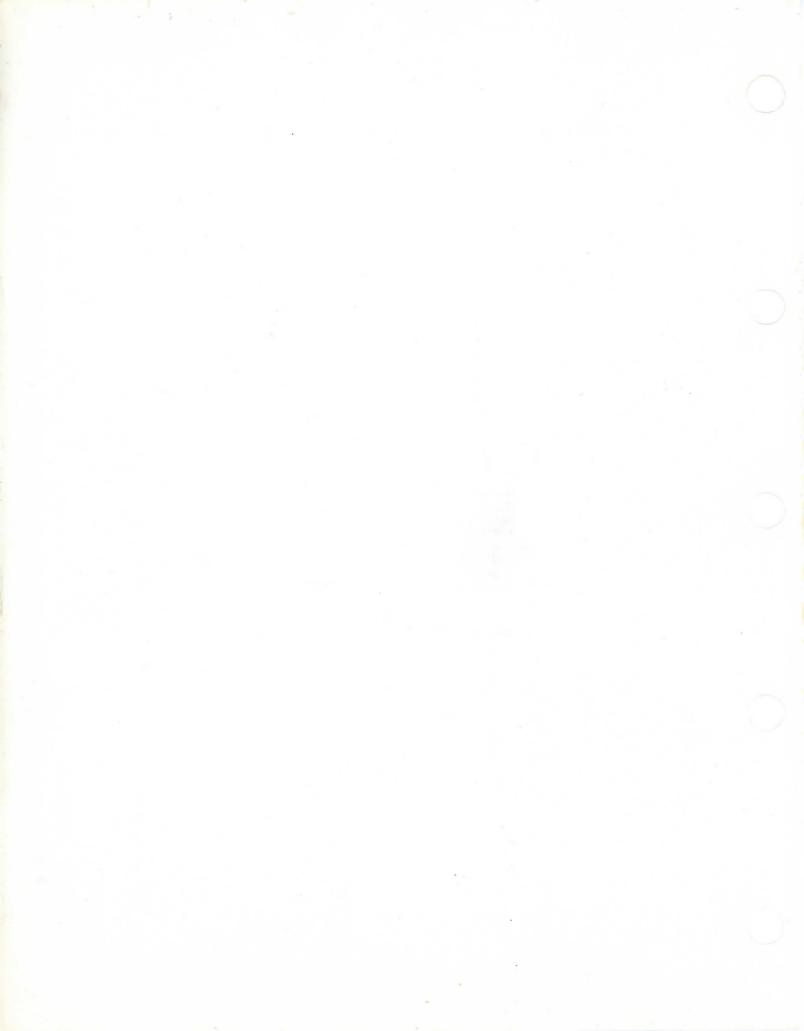


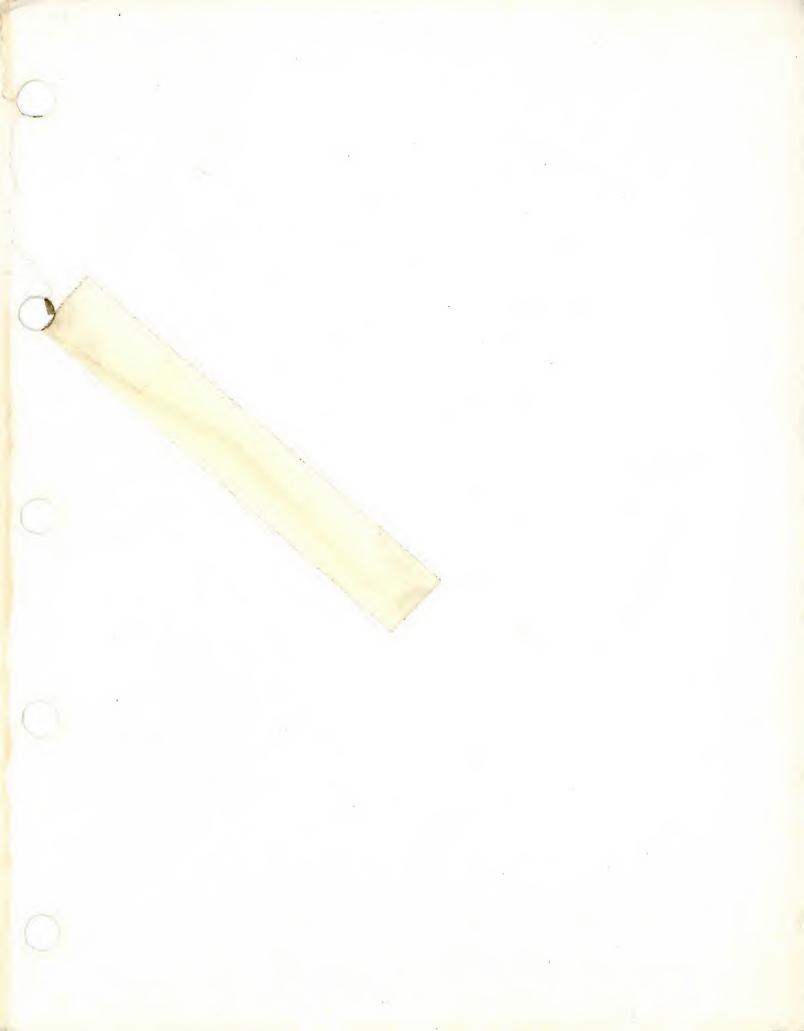




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